

KIC 012061969

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
012061969-01	OBS	2061.01	14.094457	141.089222	664.3	6.240	15.9	17.7	0.77	5081	4.08	30.17
012061969-02	OBS	2061.02	1.090040	131.570258	159.6	1.821	10.5	11.9	0.77	5081	1.19	915.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012061969-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED
012061969-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

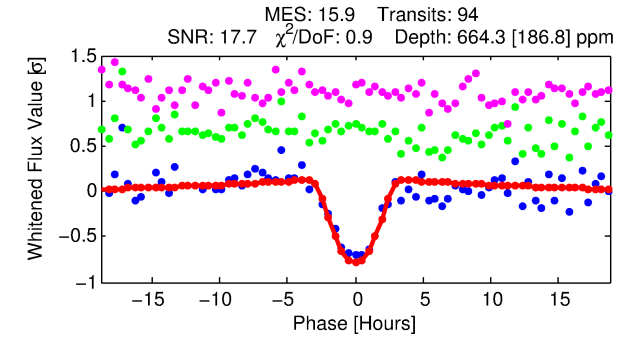
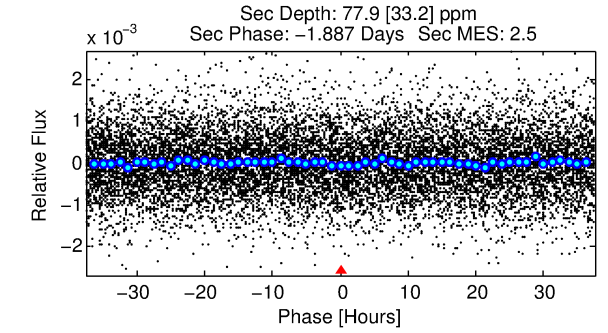
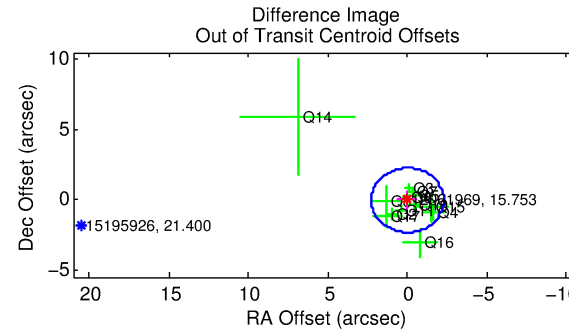
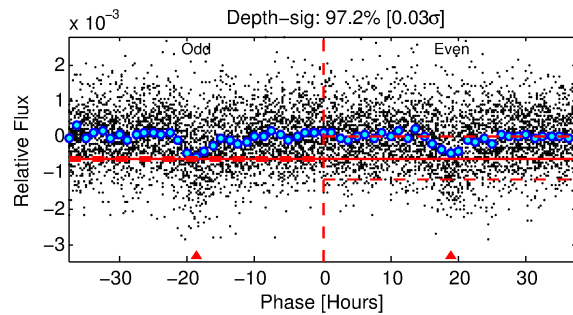
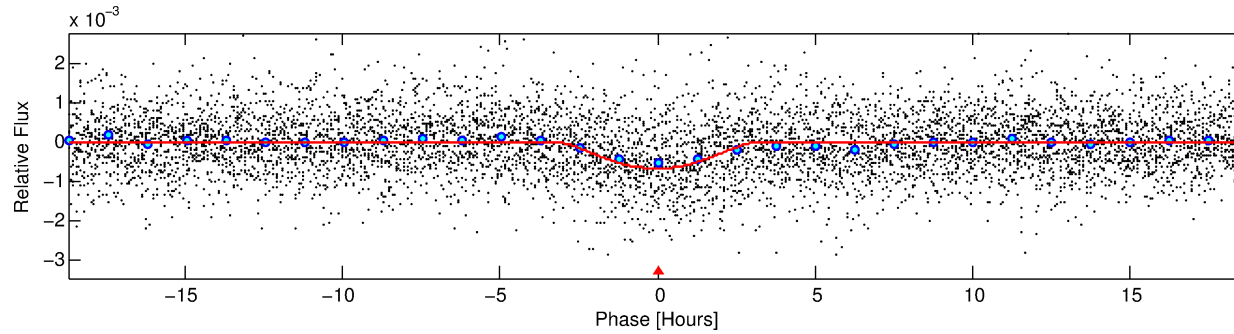
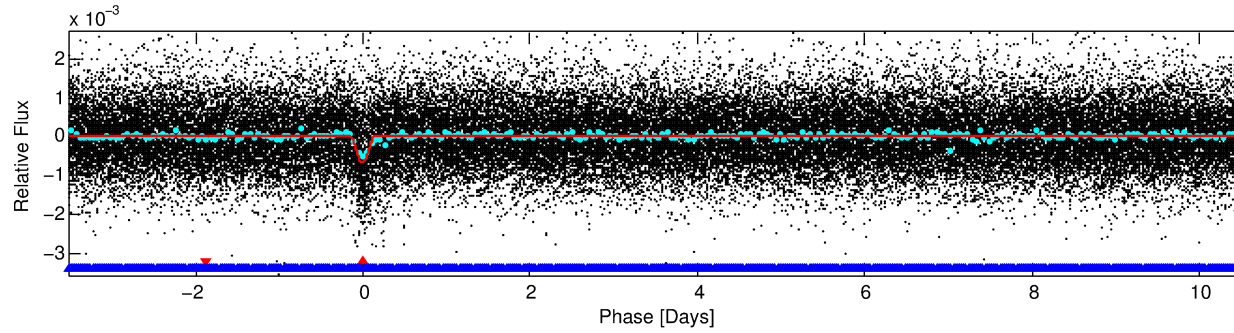
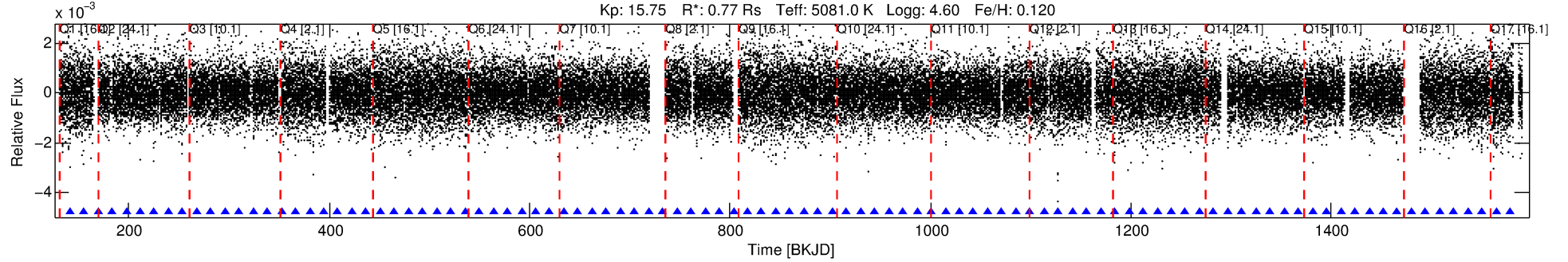
Ephemeris Match Information For 012061969-01

No Significant Match Found

DV One-Page Summary

KIC: 12061969 Candidate: 1 of 2 Period: 14.094 d

KOI: K02061.01 Corr: 0.778



DV Fit Results:

Period = 14.09446 [0.00014] d
Epoch = 141.0892 [0.0079] BKJD
Rp/R* = 0.0486 [0.1073]
a/R* = 5.55 [2.82]
b = 1.00 [0.16]
Seff = 30.17 [6.04]
Teq = 598 [30] K
Rp = 4.08 [9.03] Re
a = 0.1083 [0.0113] AU
Ag = 30.20 [134.19] [0.22 σ]
Teff = 2166 [2406] K [0.65 σ]

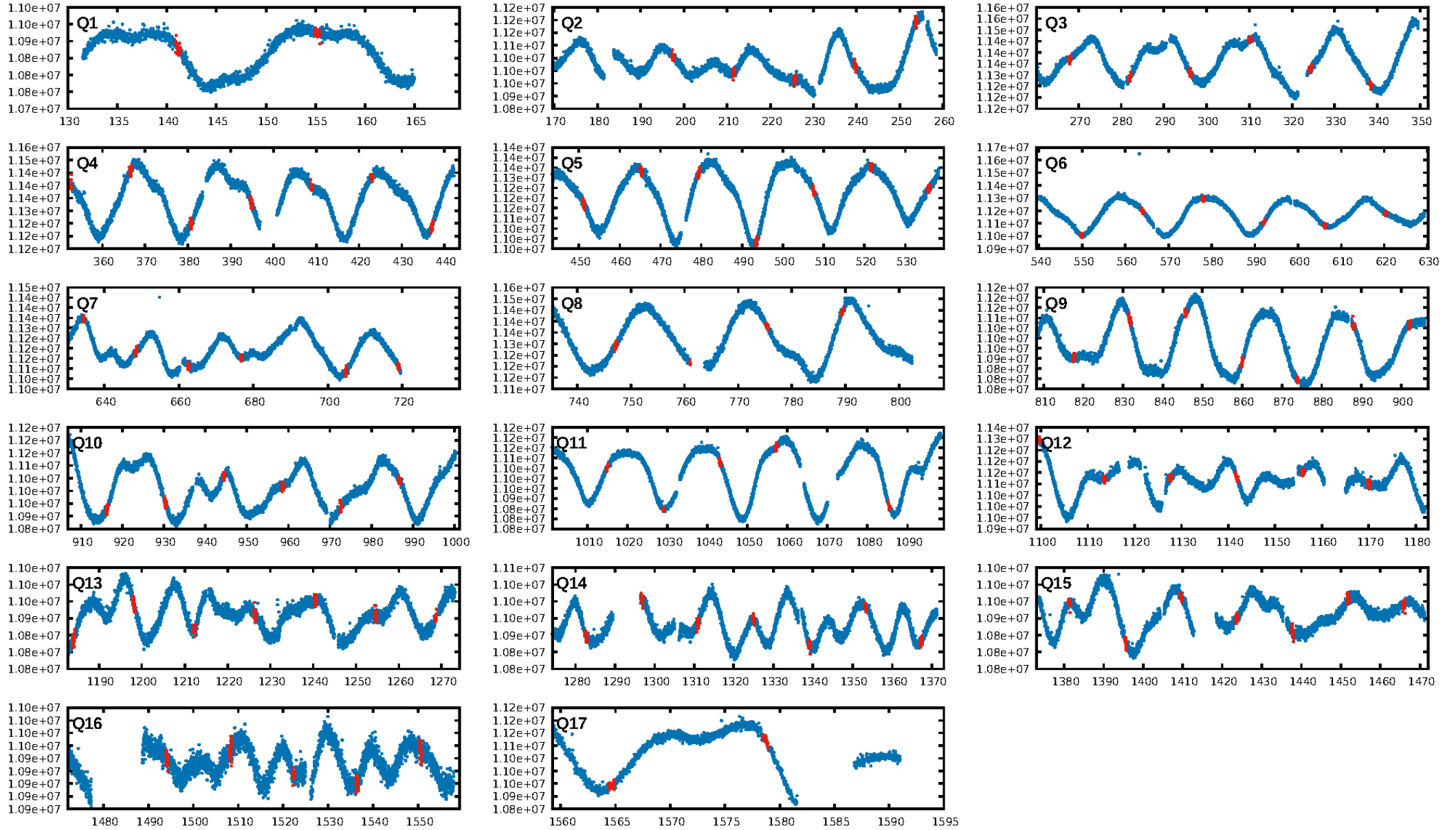
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.01 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.24e-50
RollingBand-fgt: 1.00 [90/90]
GhostDiagnostic-chr: 0.6473
Centroid-sig: 0.0%
Centroid-so: 1.653 arcsec [2.40 σ]
OotOffset-rm: 0.036 arcsec [0.05 σ]
KicOffset-rm: 0.098 arcsec [0.18 σ]
OotOffset-st: 4/4/3/2 [13]
KicOffset-st: 4/4/3/2 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 0.00 [0/17]

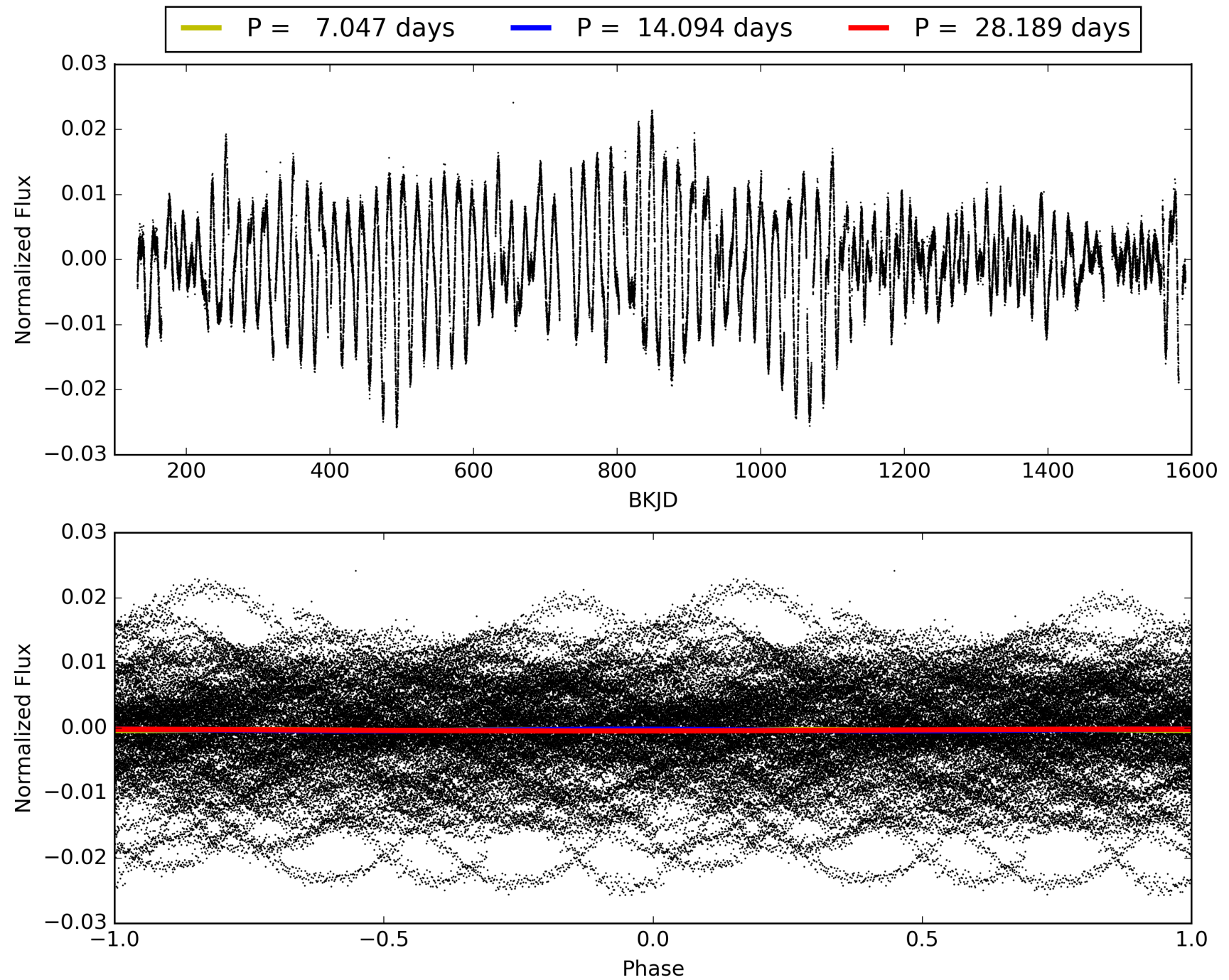
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:28:45 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012061969-01, PDC Light Curves

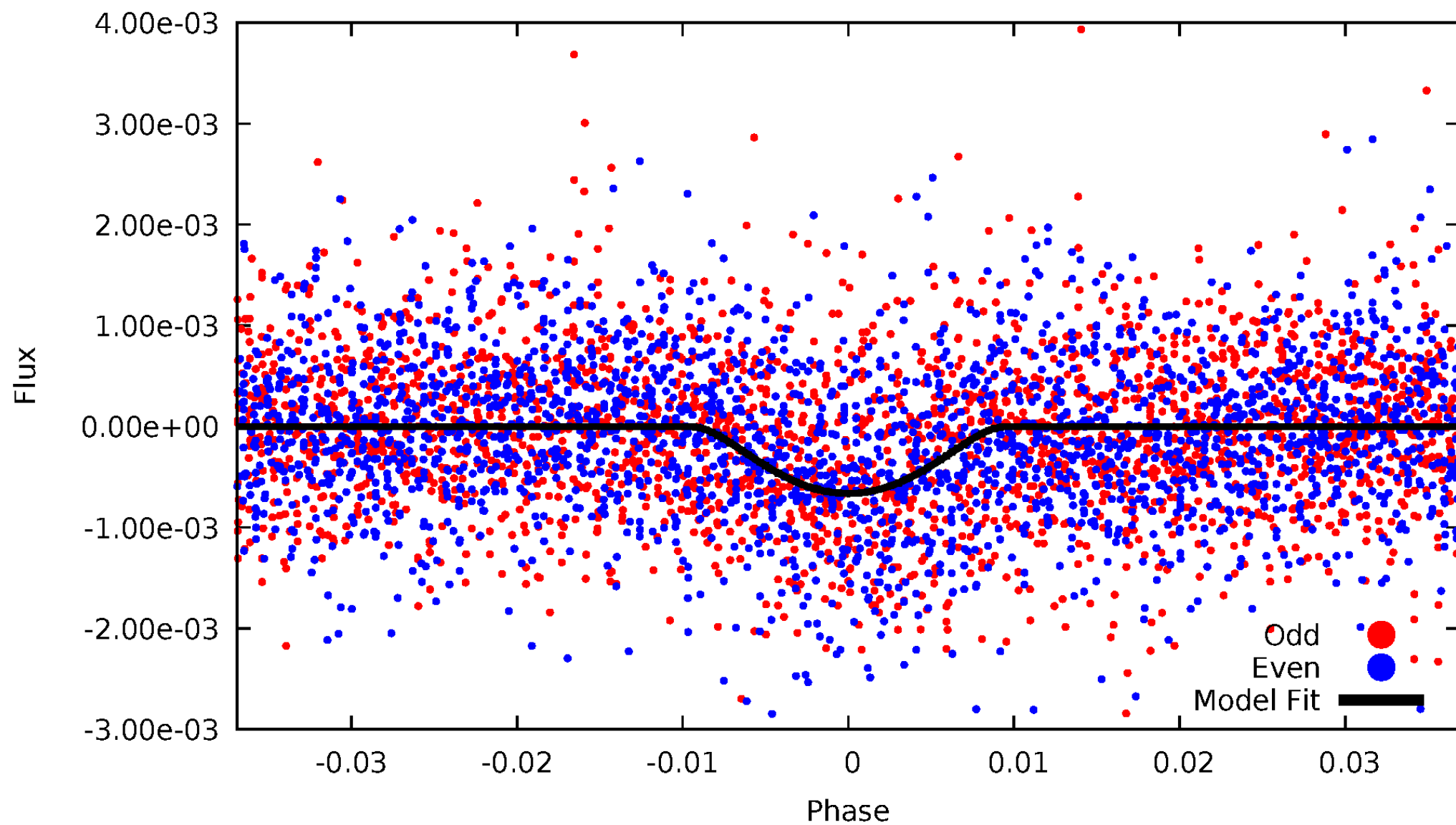


TCE 012061969-01



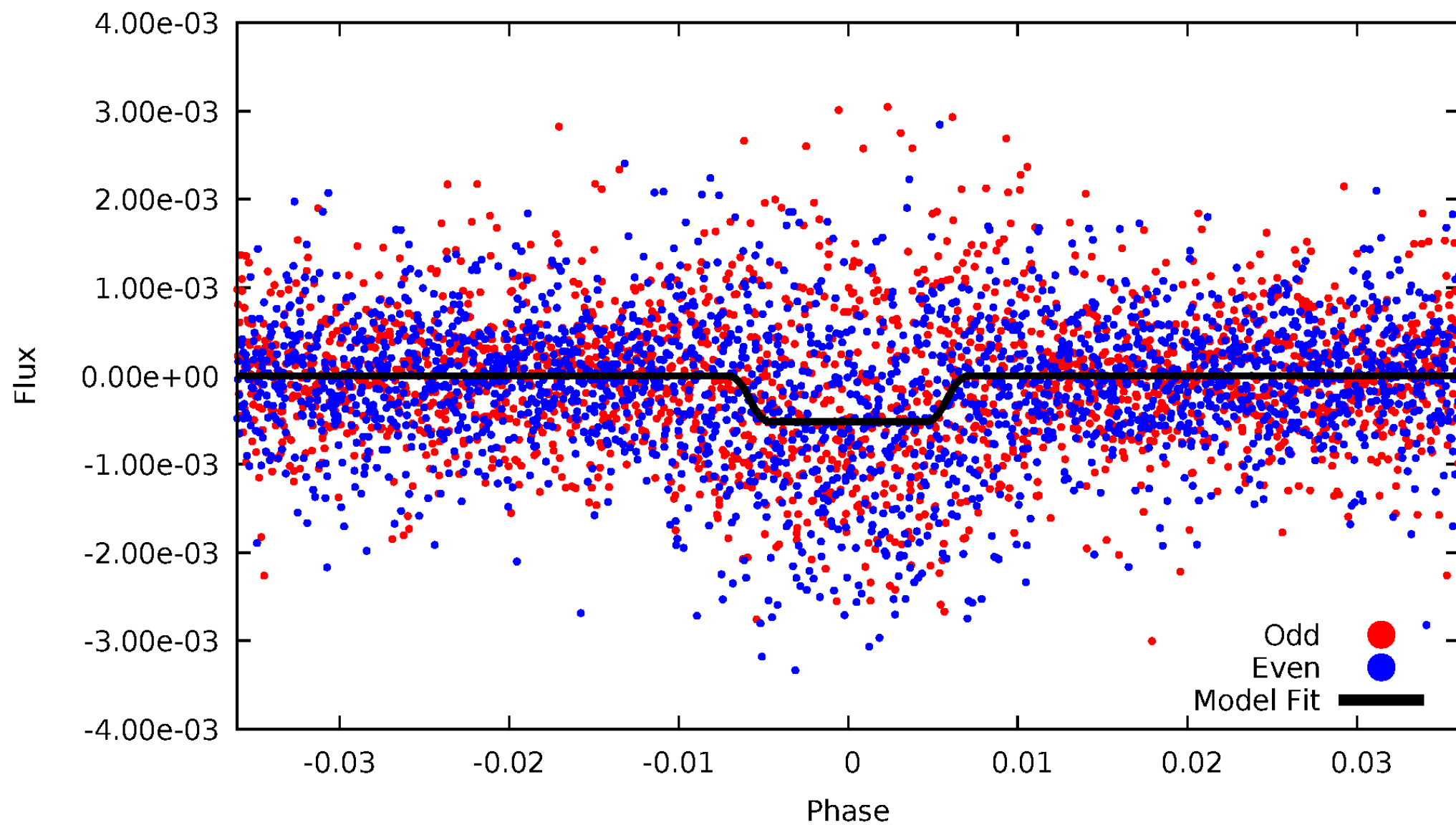
DV Odd/Even

TCE 012061969-01



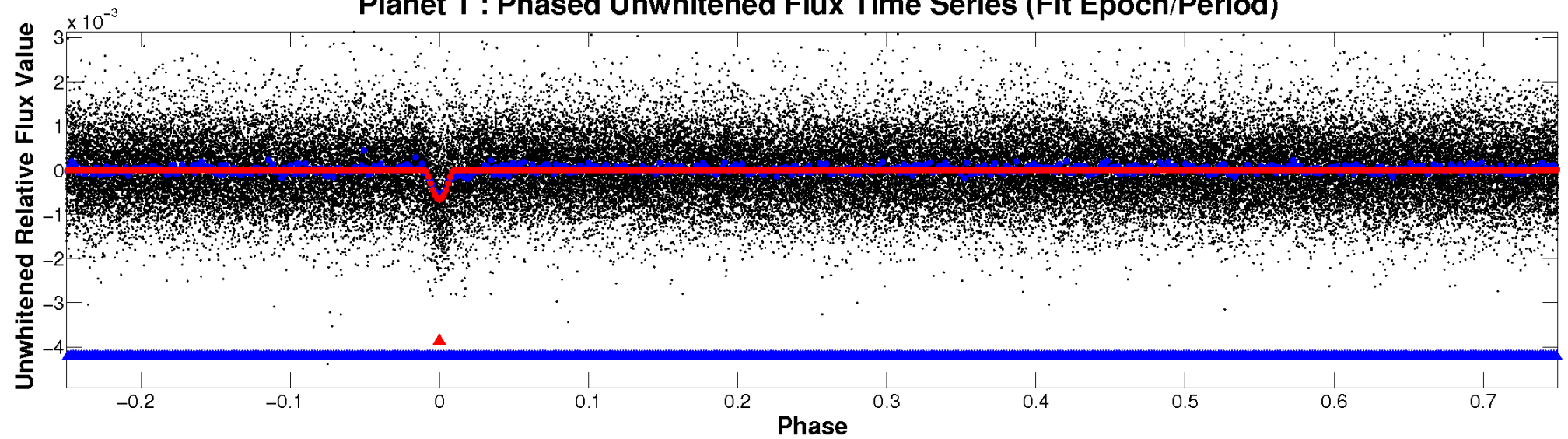
ALT Odd/Even

TCE 012061969-01

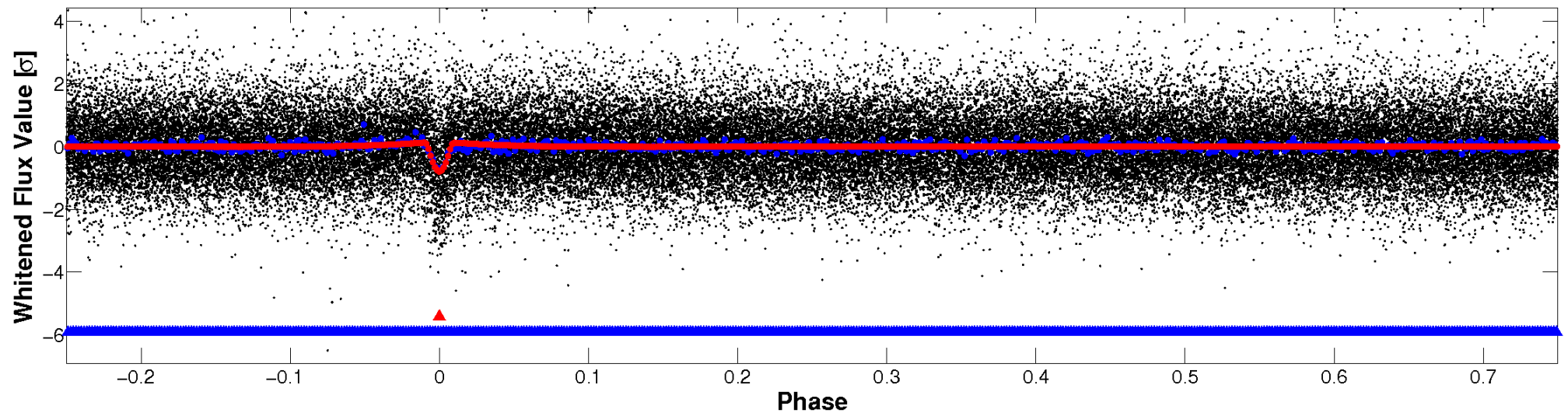


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

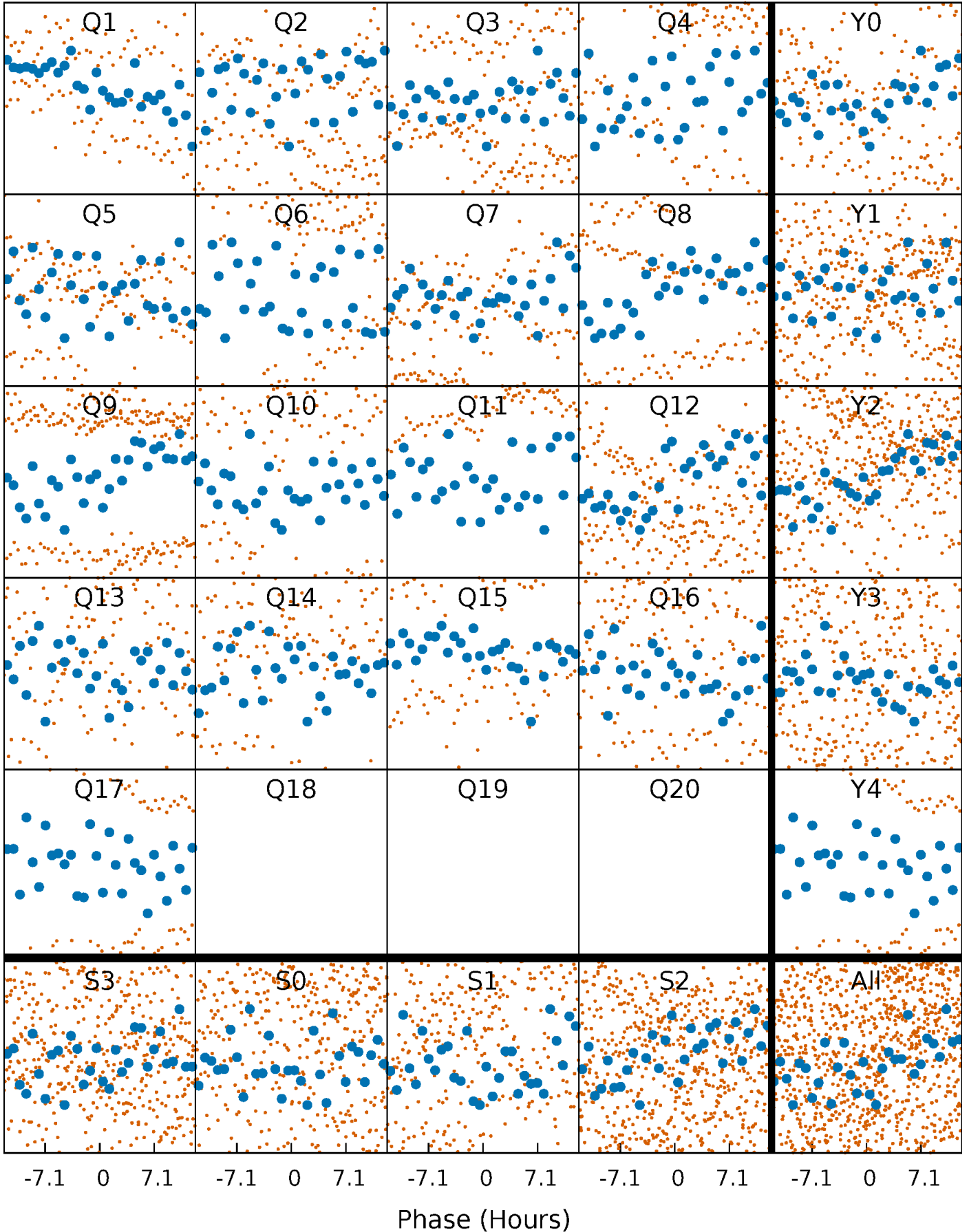


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



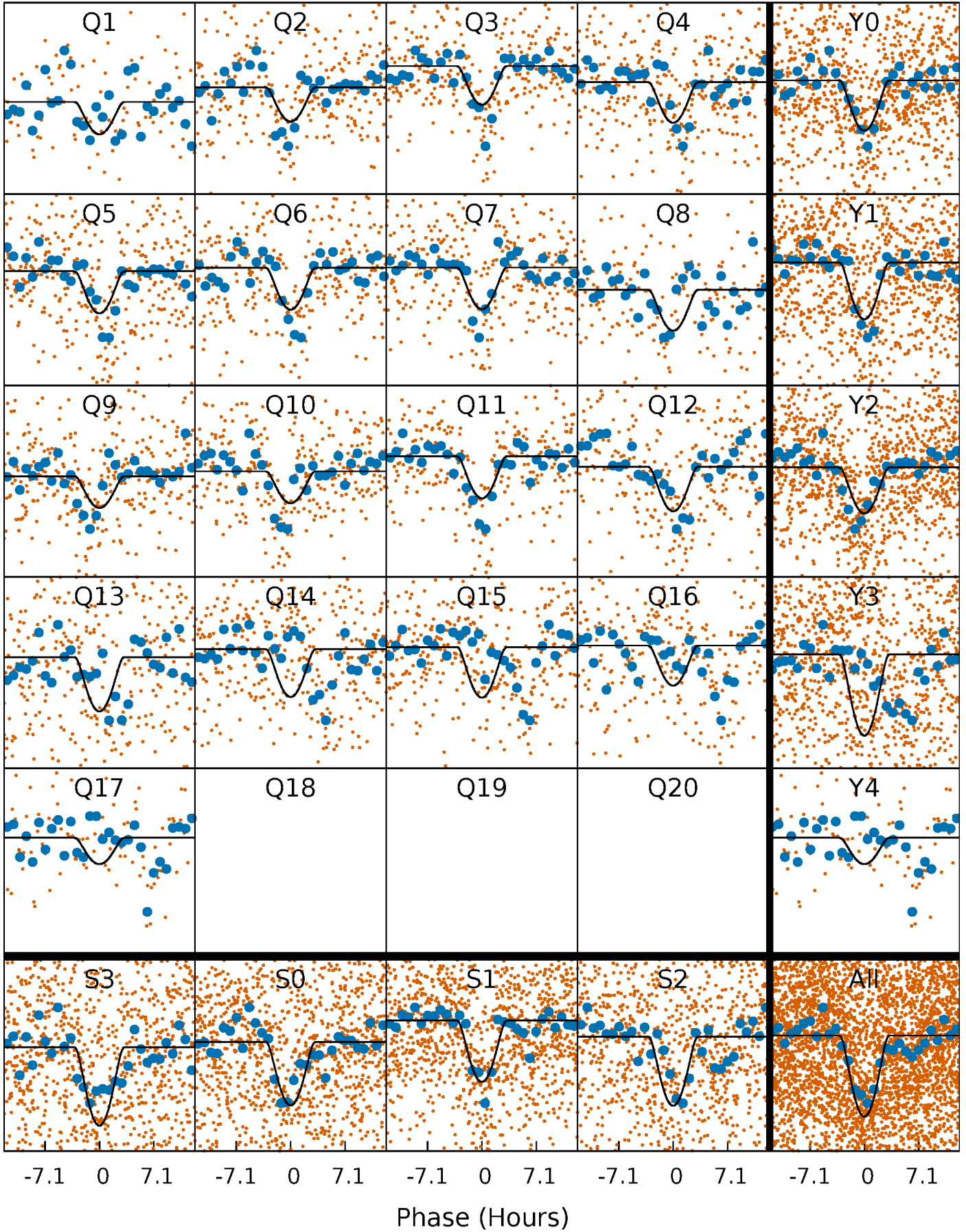
PDC Quarter-Phased Transit Curves

TCE 012061969-01 P= 14.094457 Days $T_0=141.089223$ (BKJD)



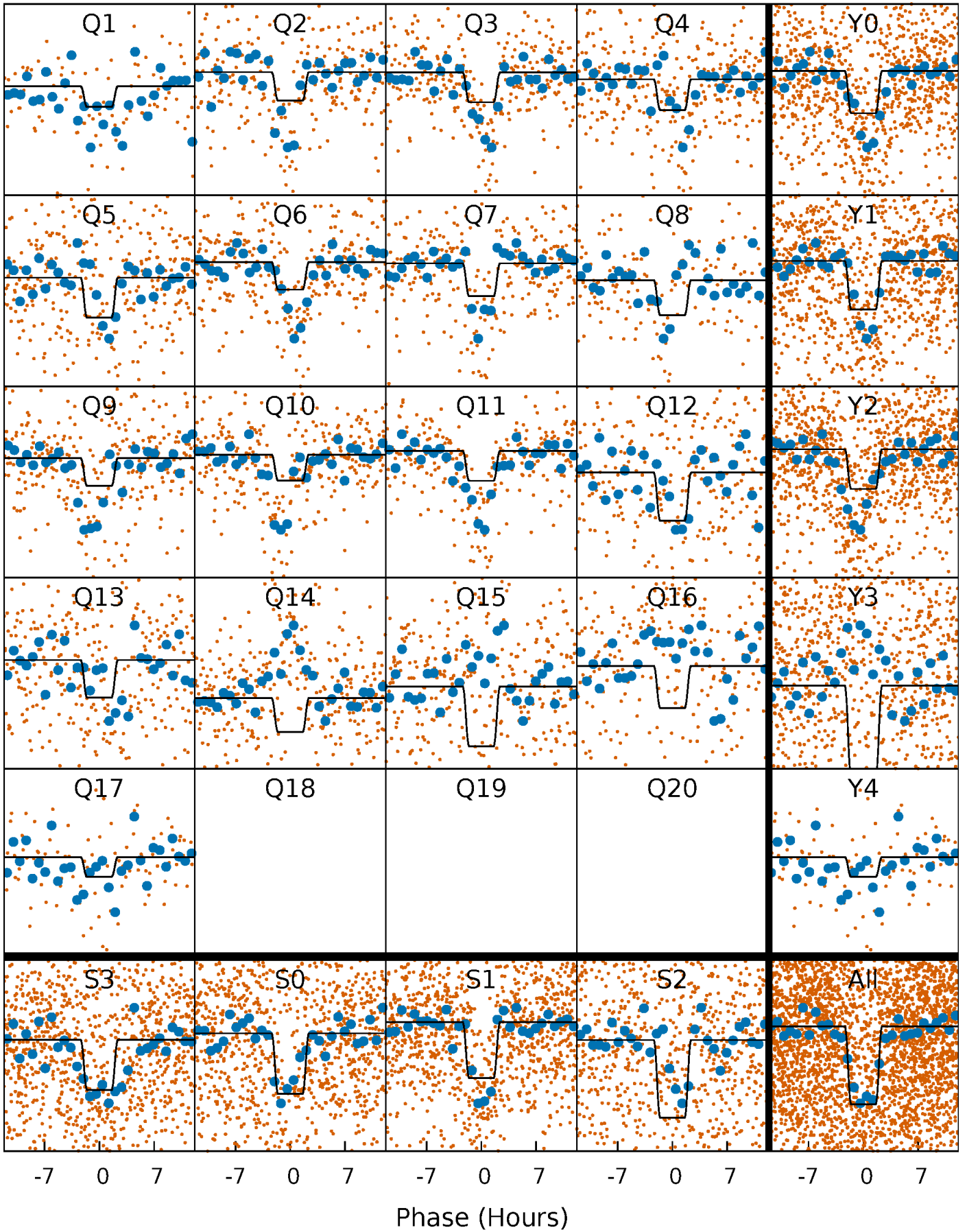
DV Quarter-Phased Transit Curves

TCE 012061969-01 P= 14.094457 Days $T_0=141.089223$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

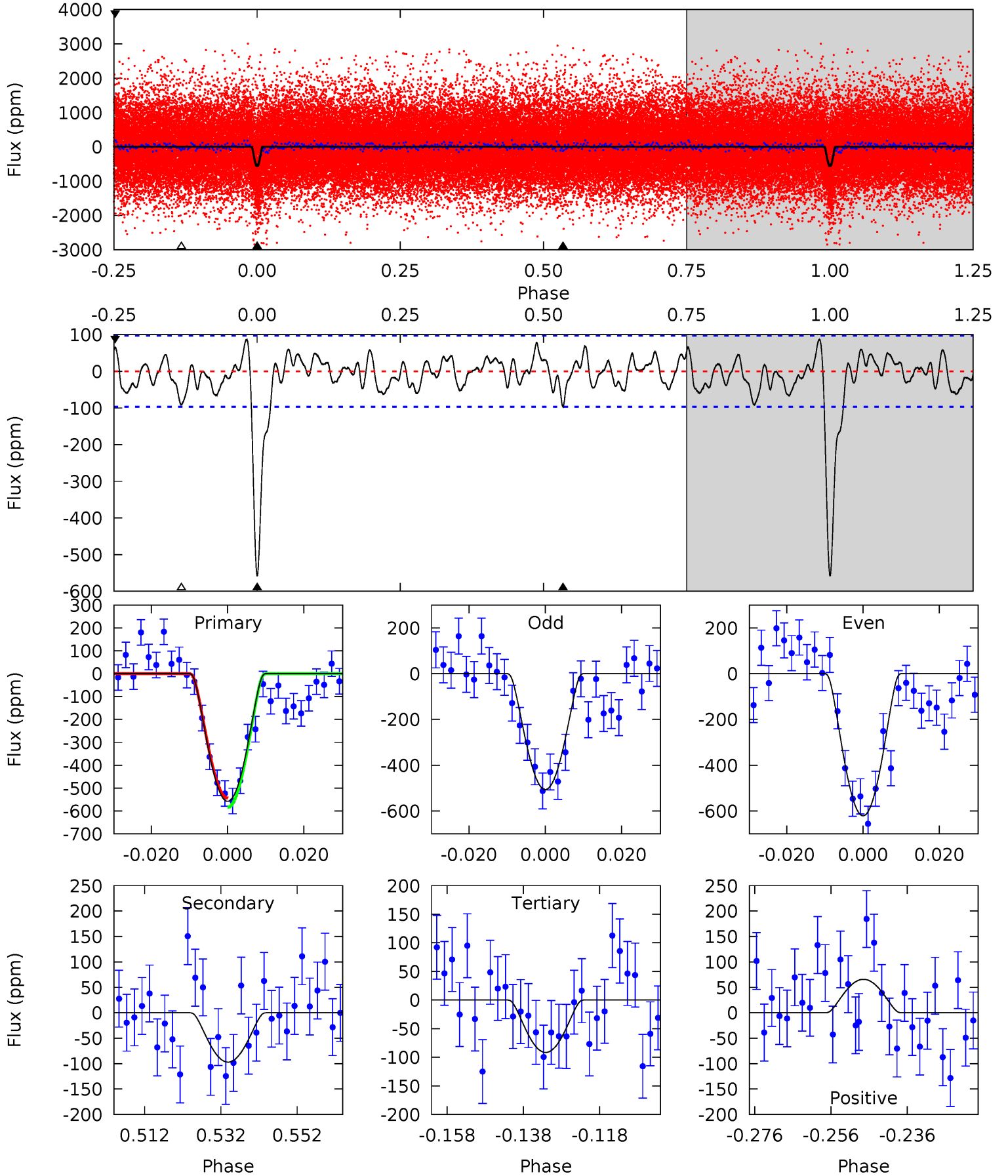
TCE 012061969-01 P= 14.094755 Days $T_0=141.072850$ (BKJD)



DV Model-Shift Uniqueness Test

012061969-01, $P = 14.094457$ Days, $E = 126.994766$ Days

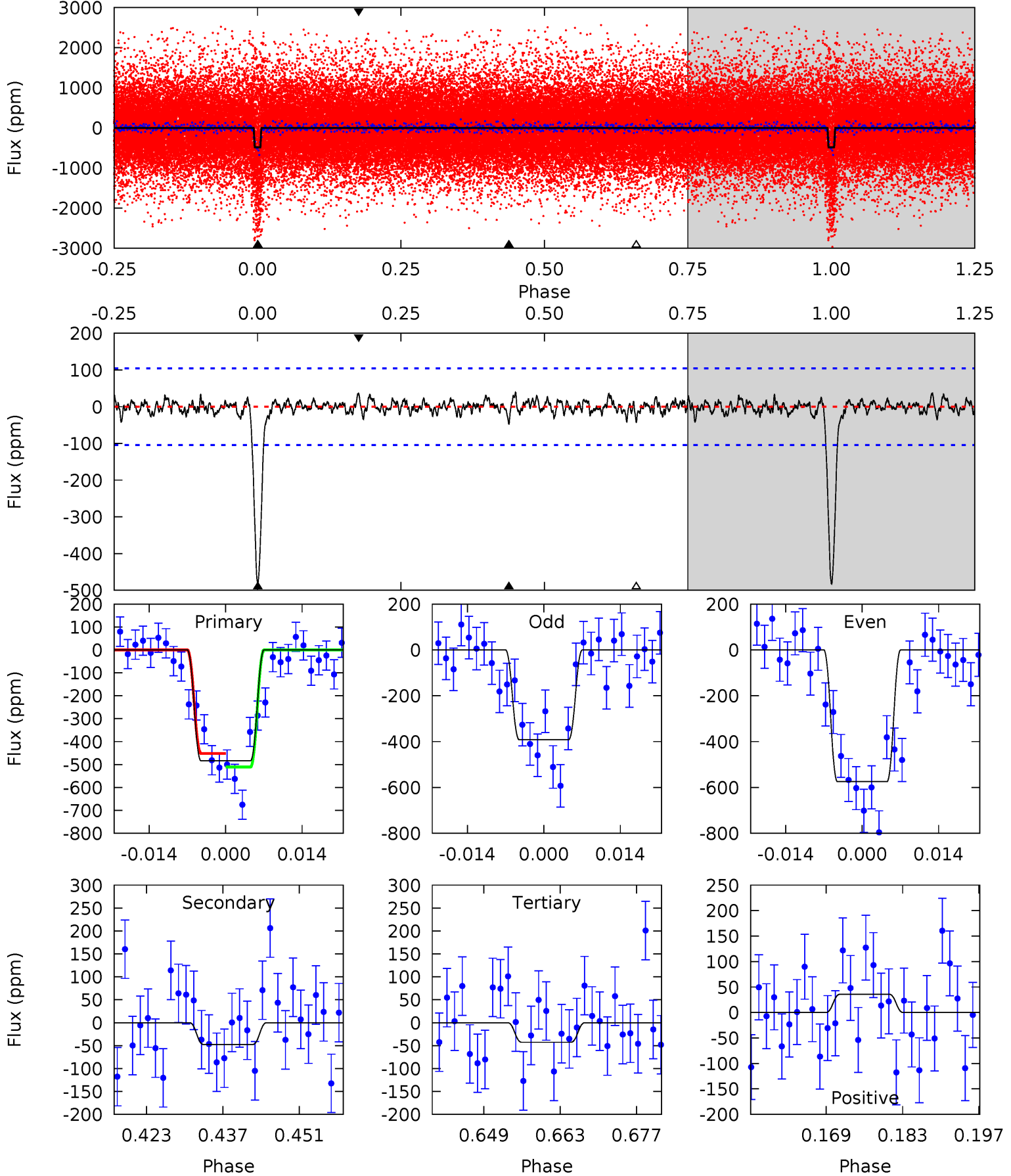
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	4.90	4.62	3.32	4.89	2.33	1.71	23.5	24.8	0.28	1.58	2.89	0.94	0.14	1.04



Alt Model-Shift Uniqueness Test

012061969-01, P = 14.094755 Days, E = 126.978095 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	2.25	2.03	1.70	4.96	2.45	0.63	20.9	21.3	0.22	0.55	4.37	0.79	0.07	1.42



Stellar Parameters For KIC 012061969

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5081^{+166}_{-136}	$4.596^{+0.028}_{-0.083}$	$0.120^{+0.250}_{-0.300}$	$0.770^{+0.095}_{-0.055}$	$0.864^{+0.049}_{-0.085}$	$2.663^{+0.398}_{-0.741}$
	+3%/-3%	+1%/-2%	+208%/-250%	+12%/-7%	+6%/-10%	+15%/-28%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012061969-01 / KOI 2061.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-97 ± 20	$8.32^{+7.92}_{-5.43}$	846^{+35}_{-30}	2444^{+837}_{-368}	$8.557^{+64.034}_{-6.293}$
Alt.	-47 ± 21	$7.04^{+6.85}_{-5.25}$	845^{+34}_{-29}	2331^{+1076}_{-398}	$5.733^{+92.186}_{-4.448}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

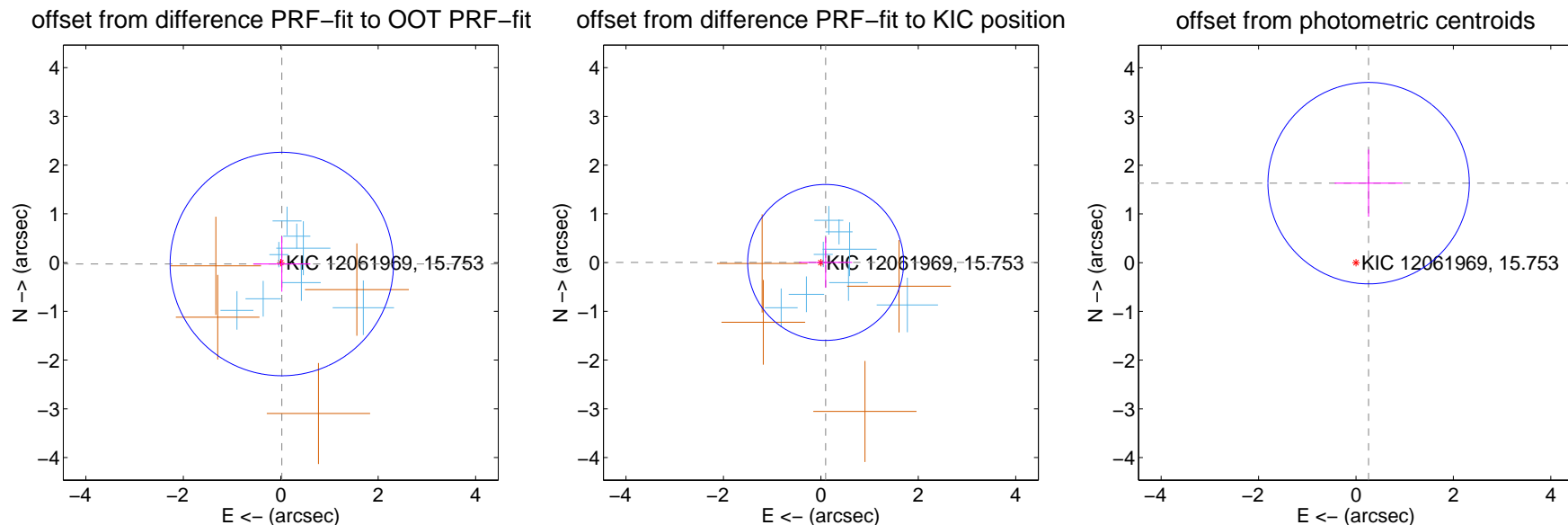
DV Centroid Data

Supplemental centroid analysis for 012061969-01. Kepler magnitude: 15.75. Transit SNR 17.66

There are 8 quarters with good PRF difference image offsets

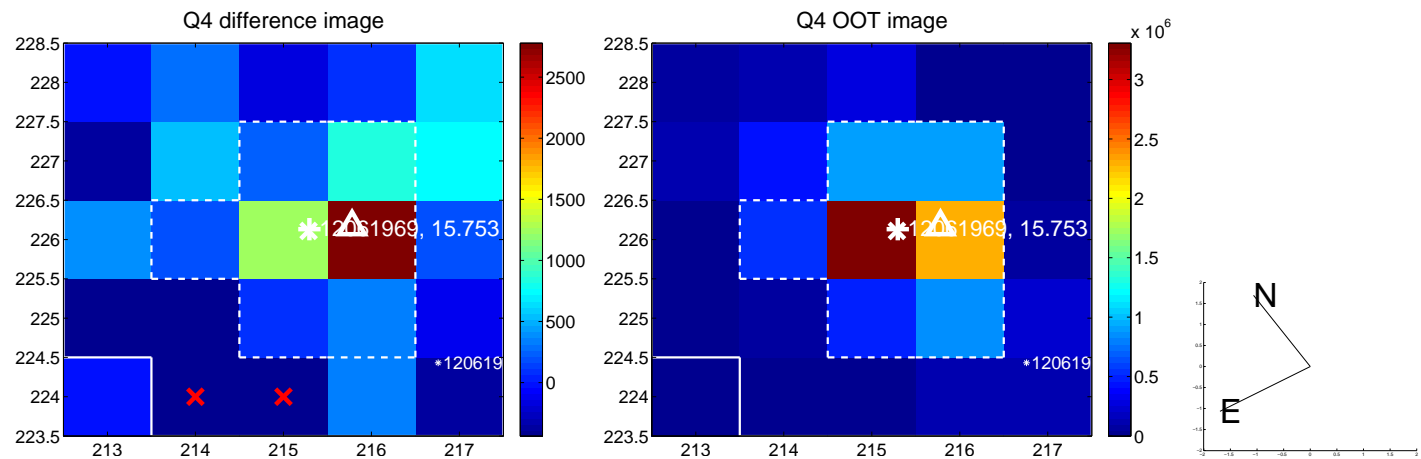
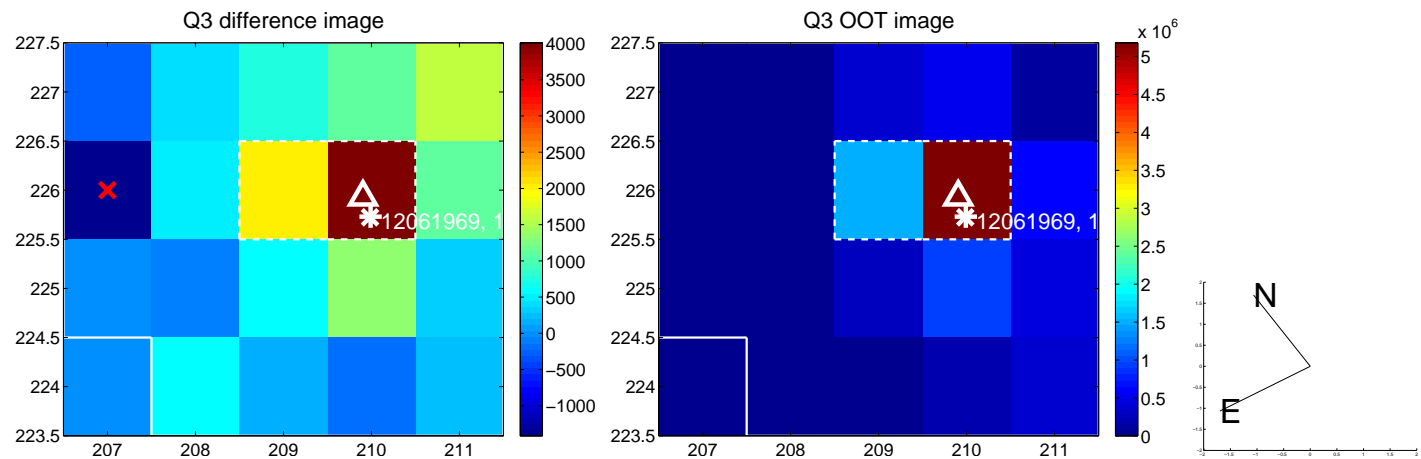
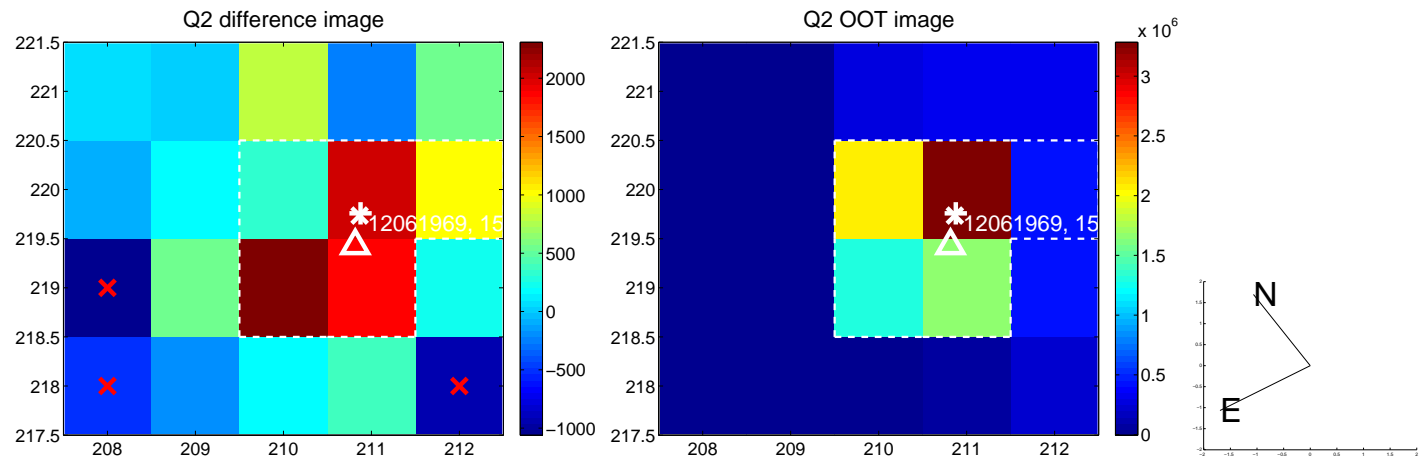
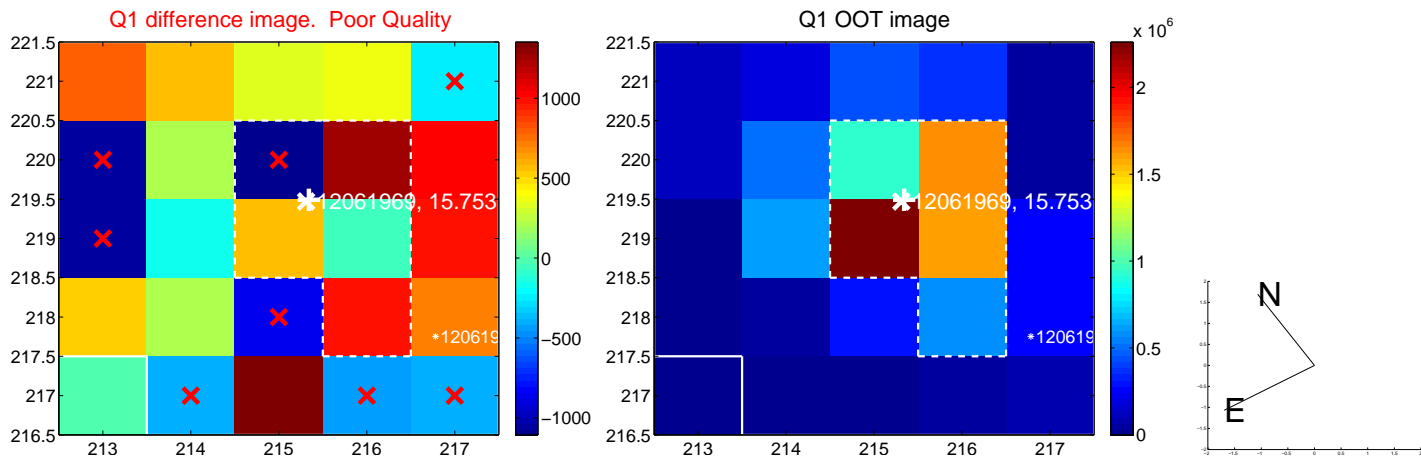
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.036 ± 0.764	0.05	-0.021 ± 0.586	-0.029 ± 0.567
PRF-fit source offset from KIC position	0.098 ± 0.533	0.18	-0.098 ± 0.546	0.003 ± 0.520
photometric centroid source offset	1.65 ± 0.69	2.40	-0.26 ± 0.70	1.63 ± 0.69

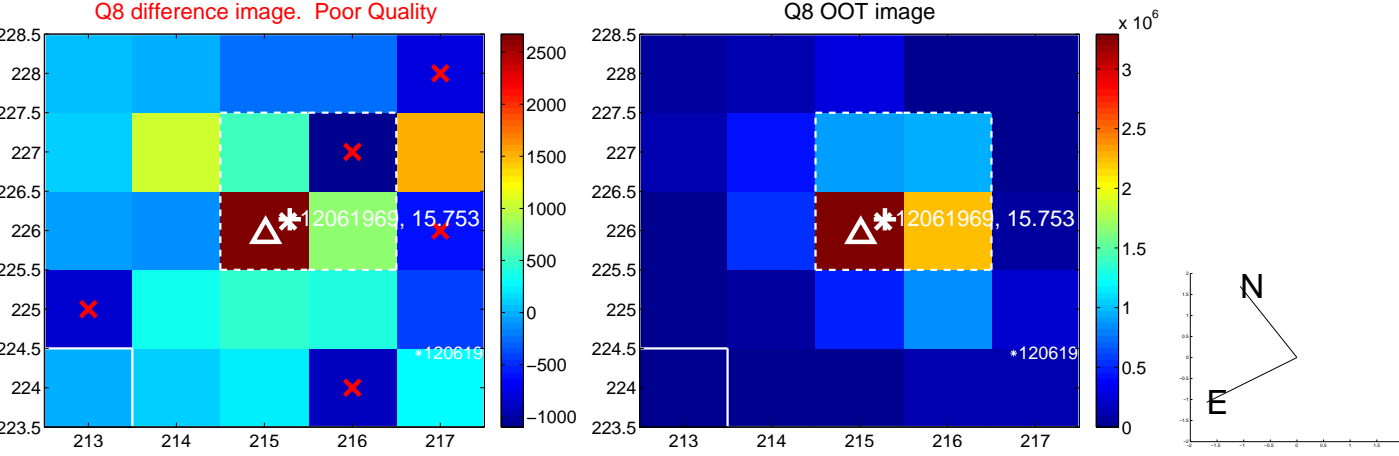
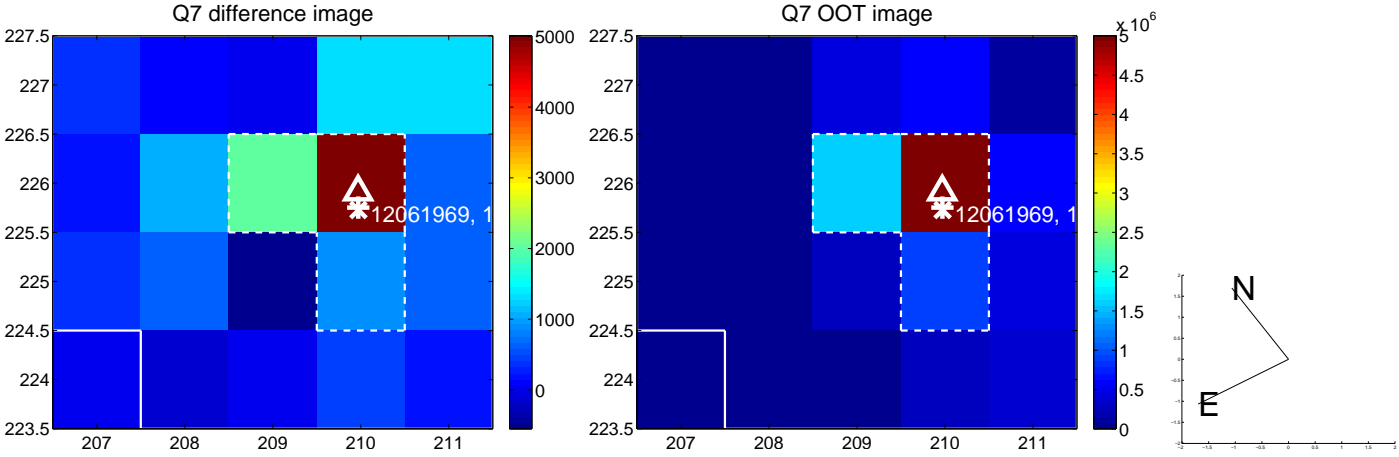
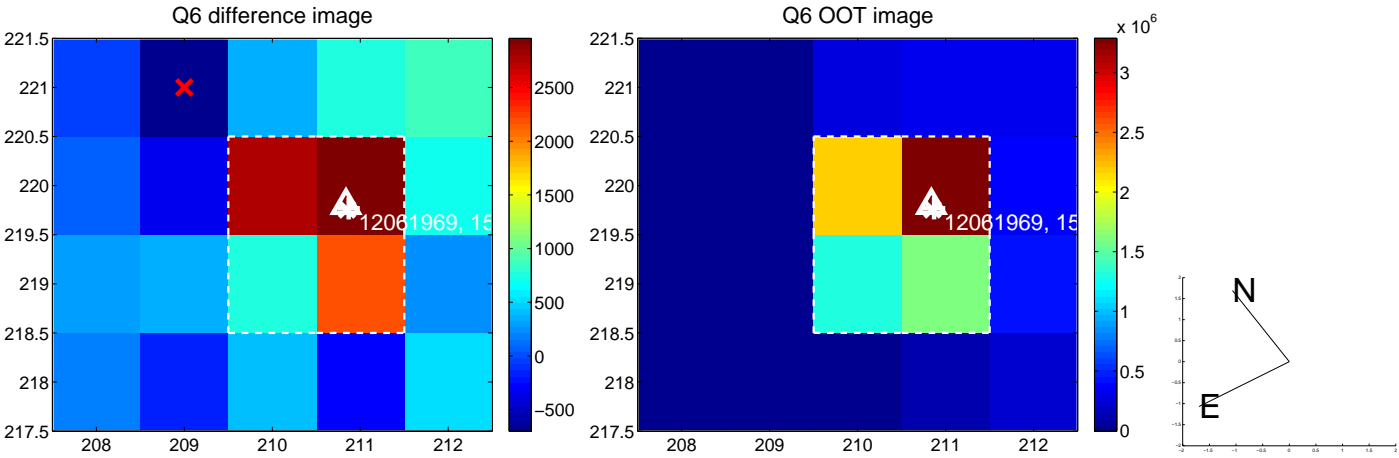
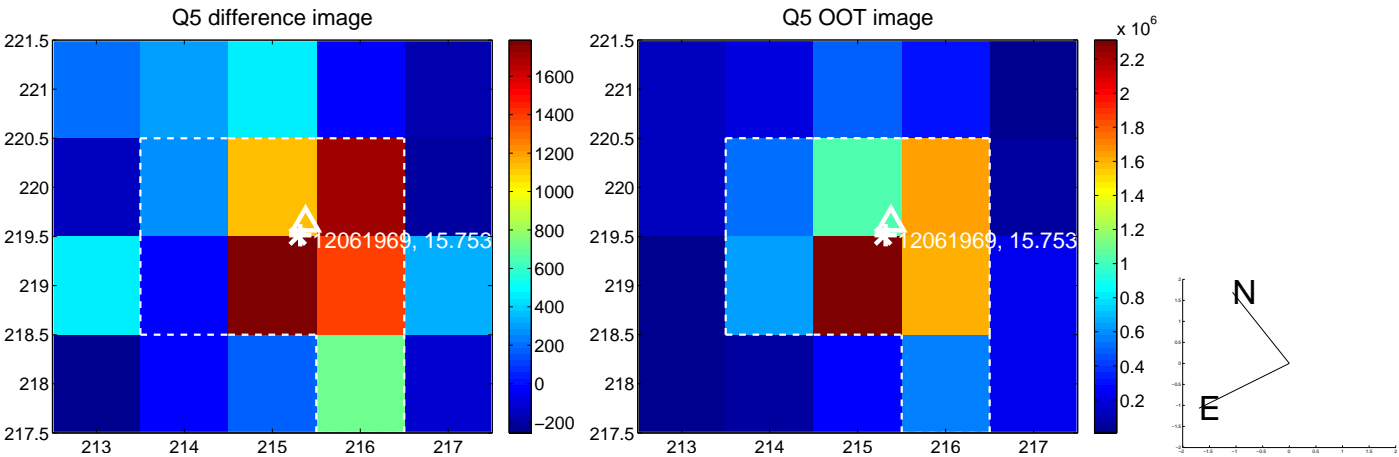


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

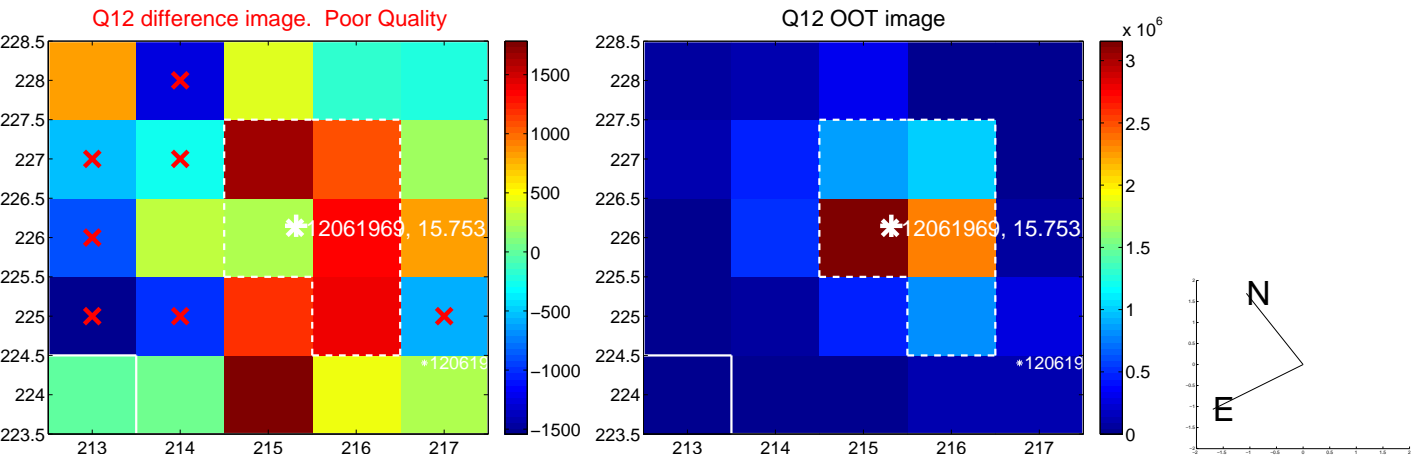
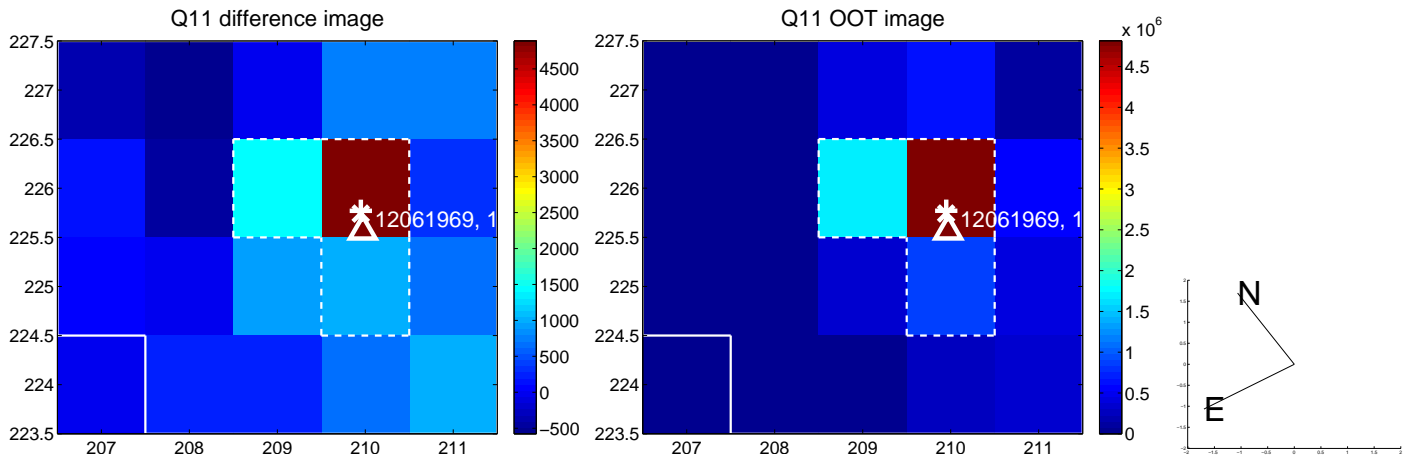
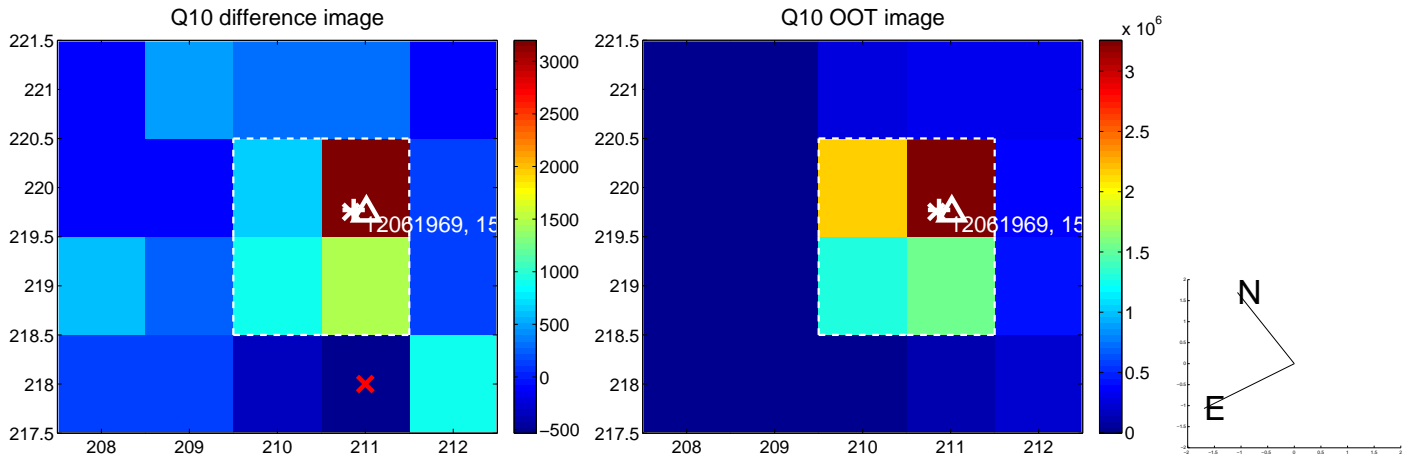
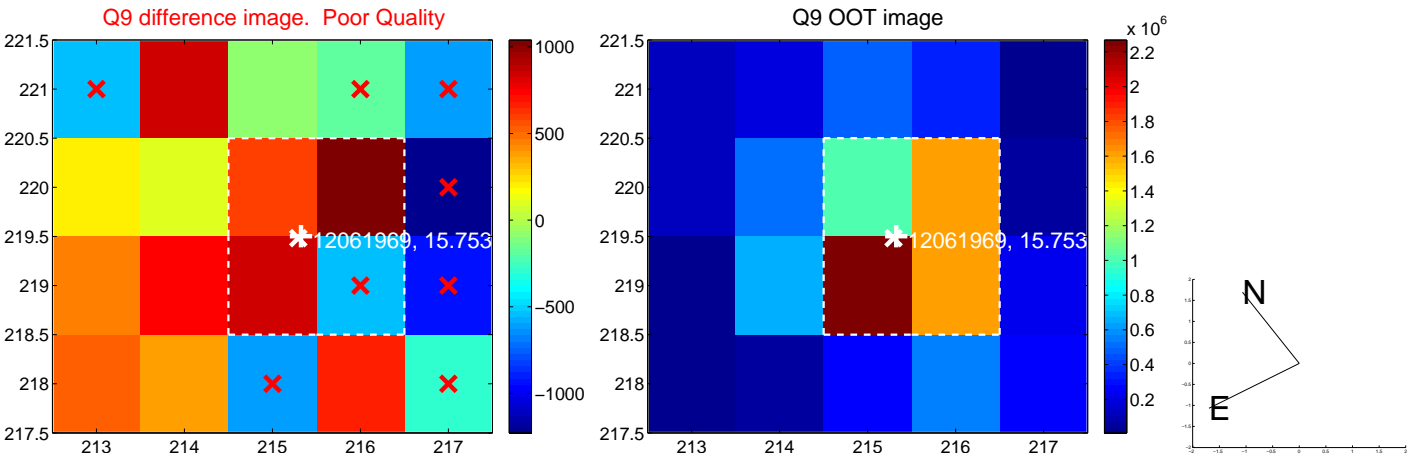
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



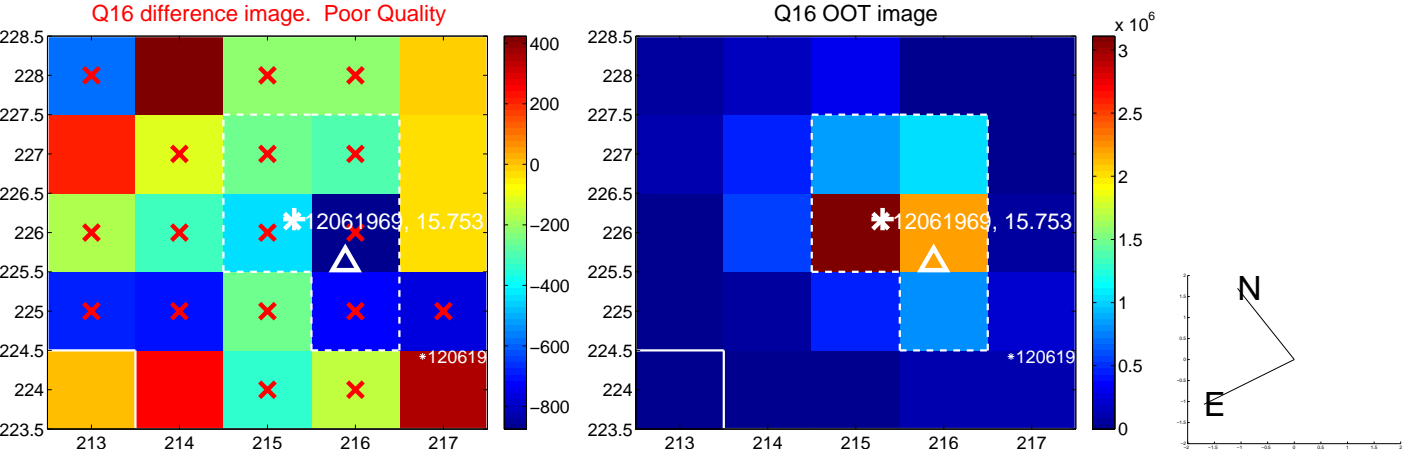
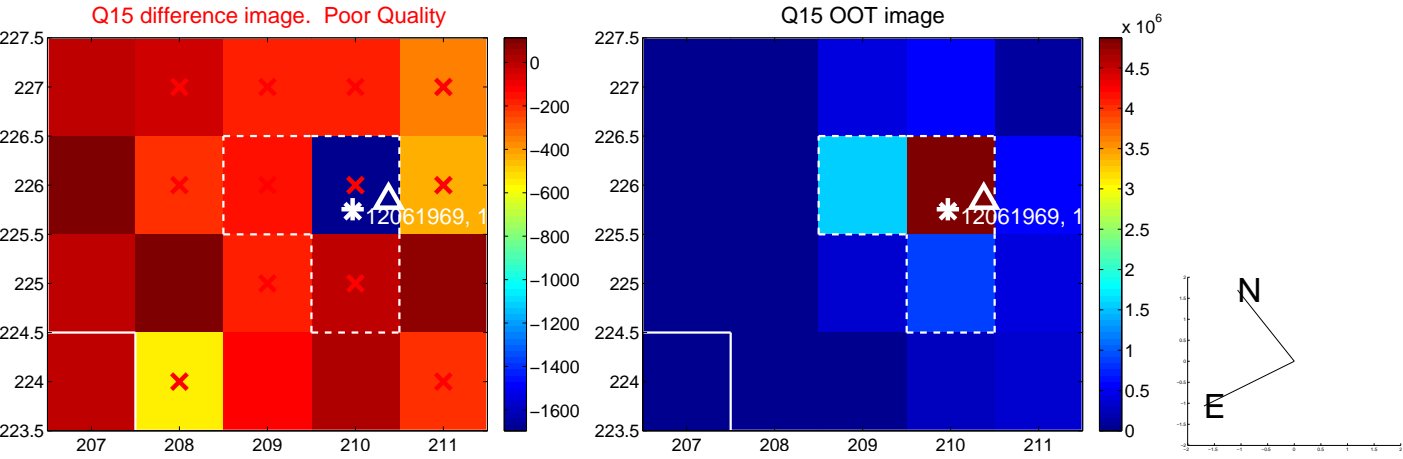
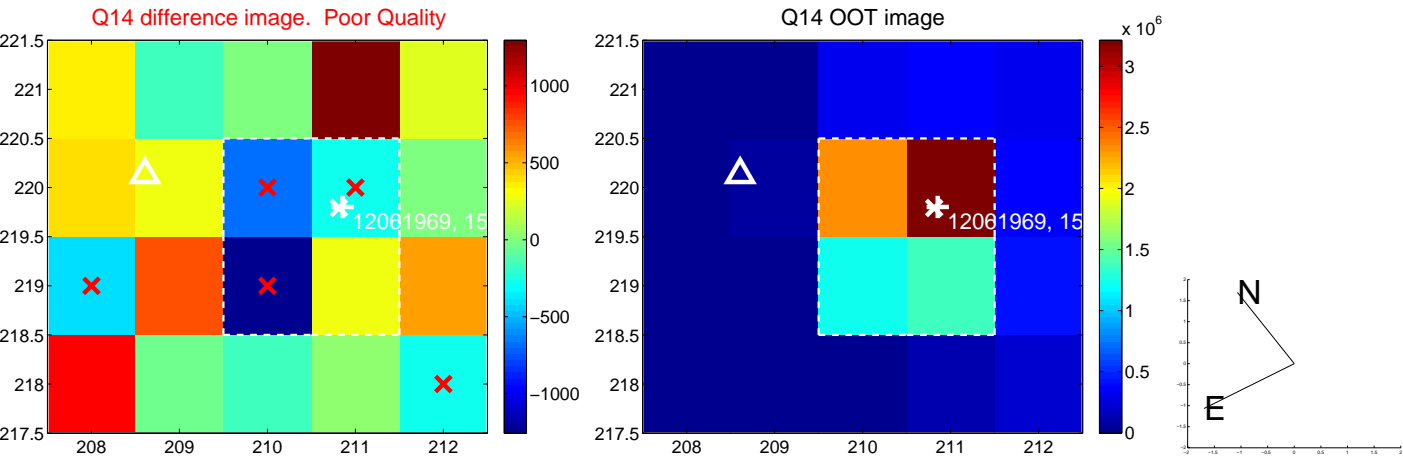
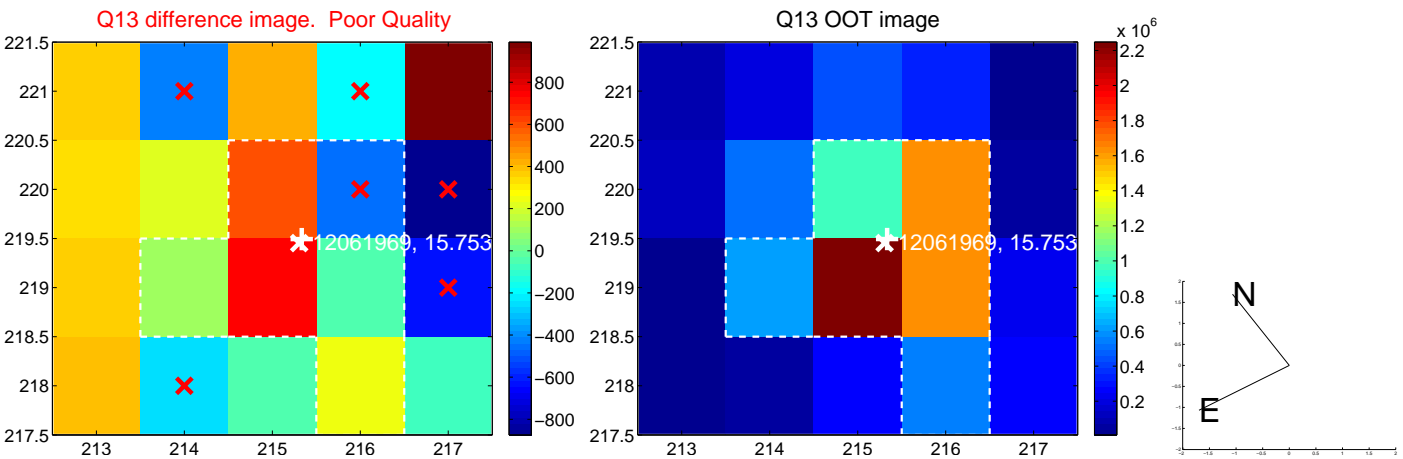
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



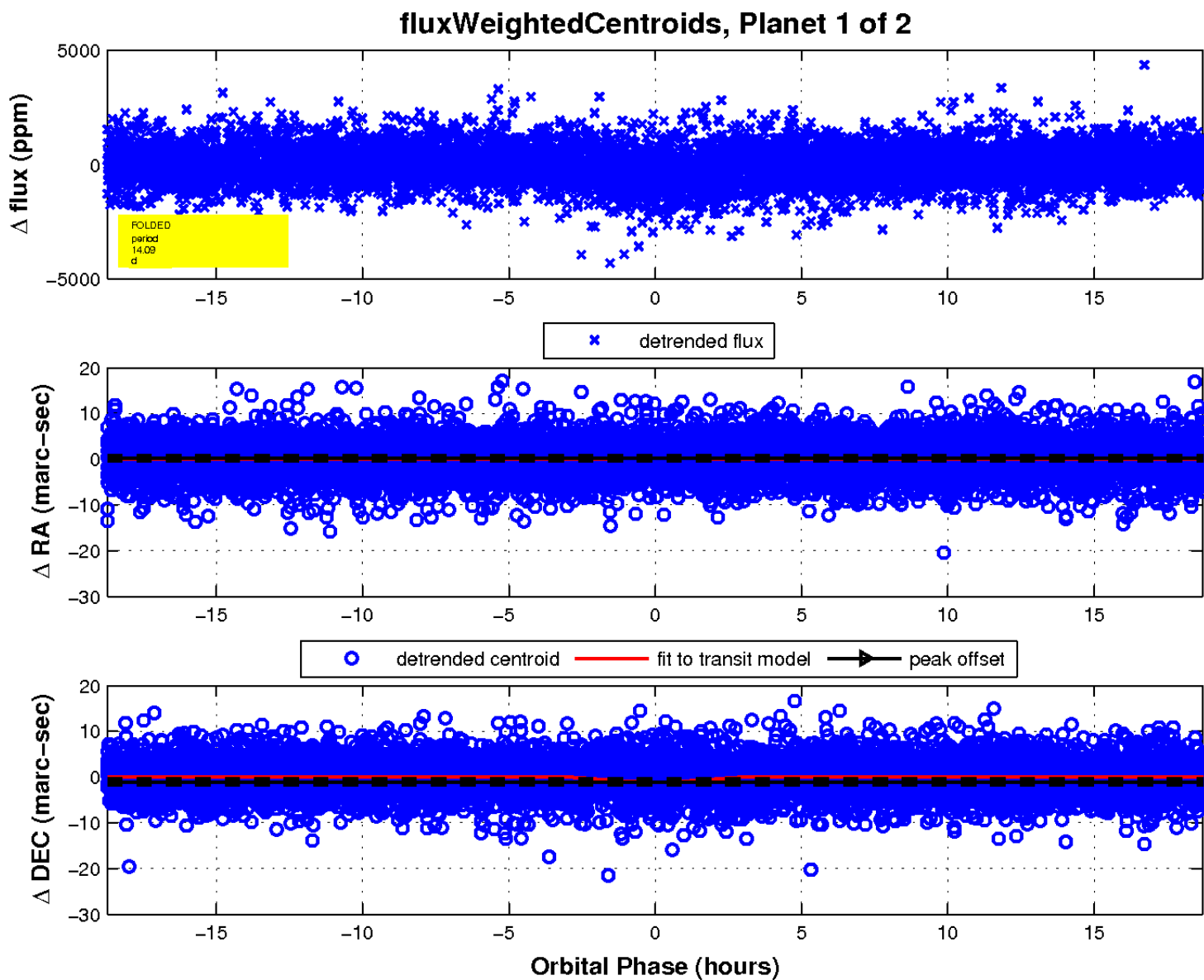
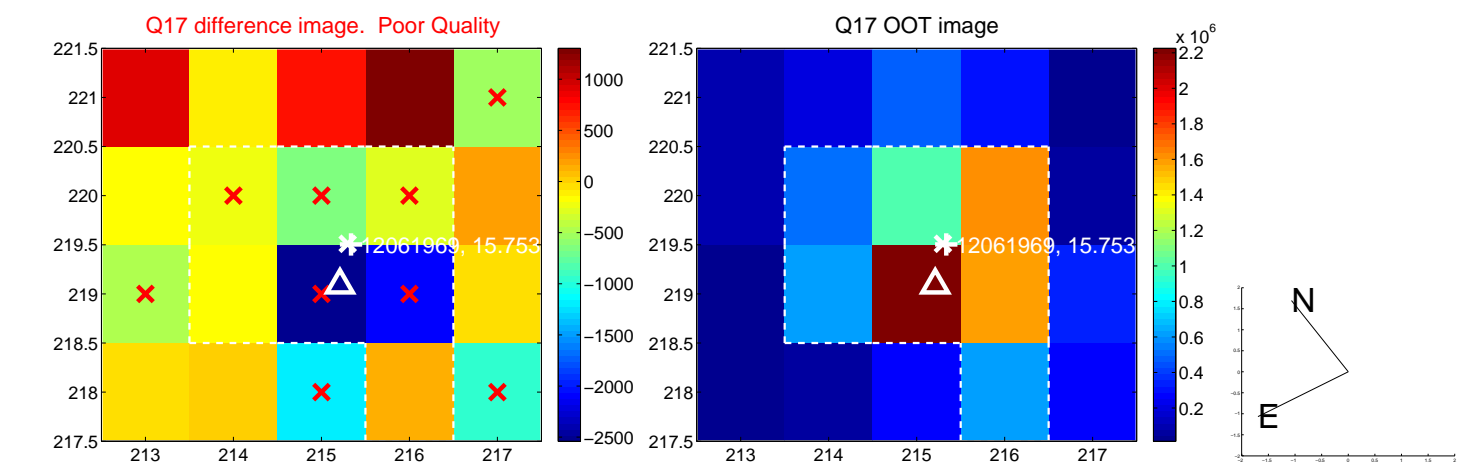
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



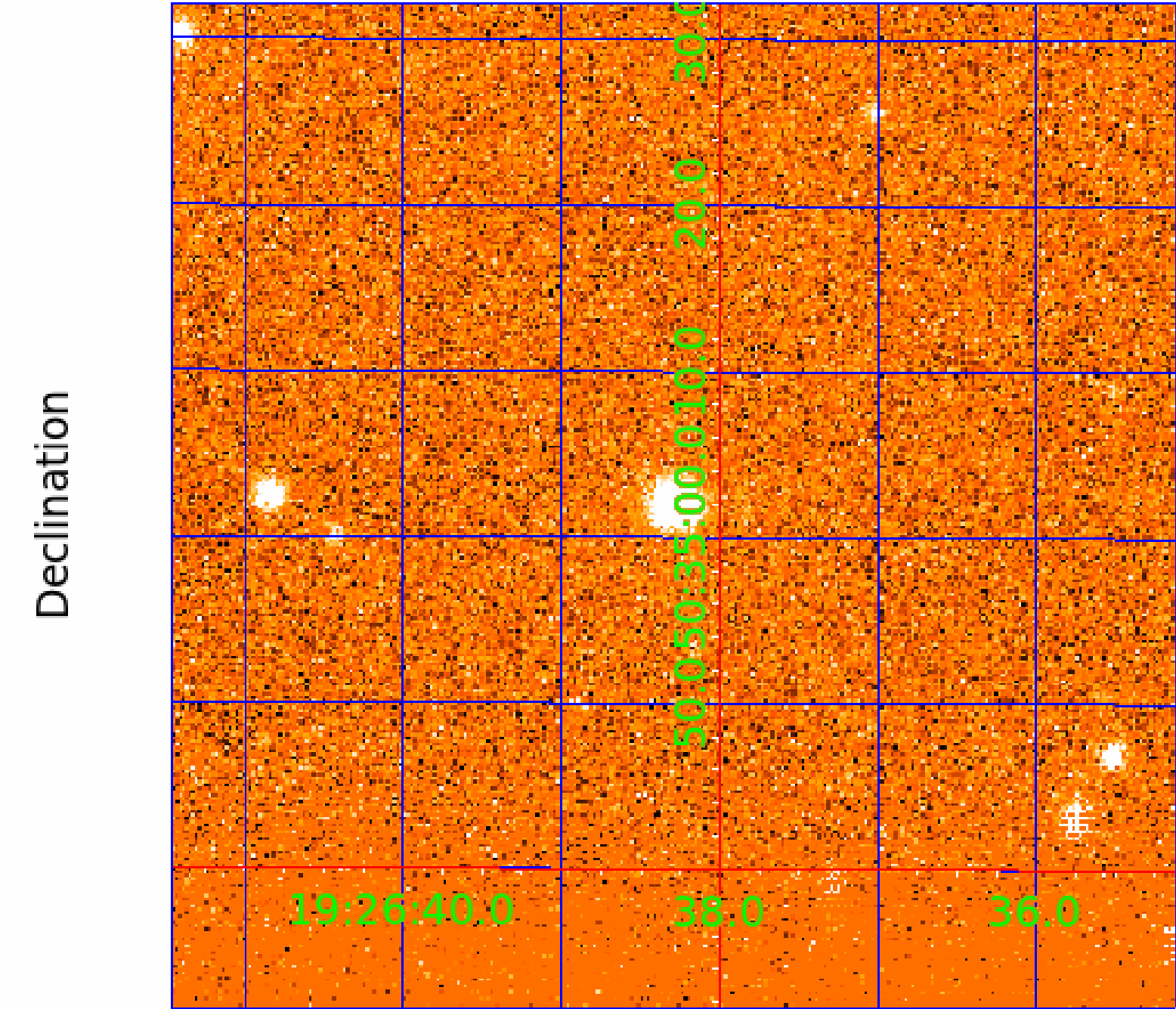
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image



KIC 012061969

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
012061969-01	OBS	2061.01	14.094457	141.089222	664.3	6.240	15.9	17.7	0.77	5081	4.08	30.17
012061969-02	OBS	2061.02	1.090040	131.570258	159.6	1.821	10.5	11.9	0.77	5081	1.19	915.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012061969-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED
012061969-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

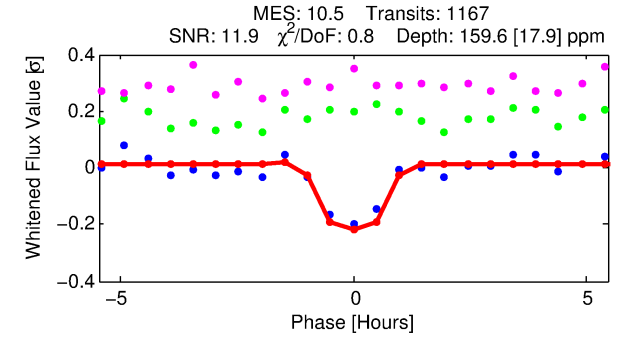
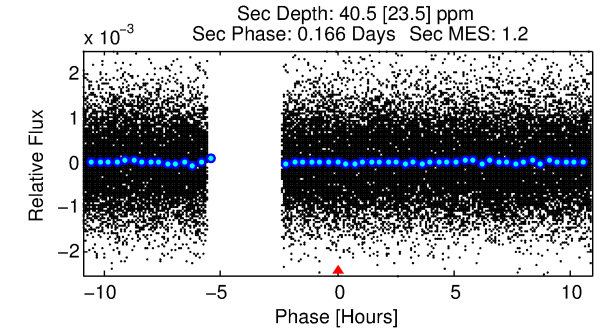
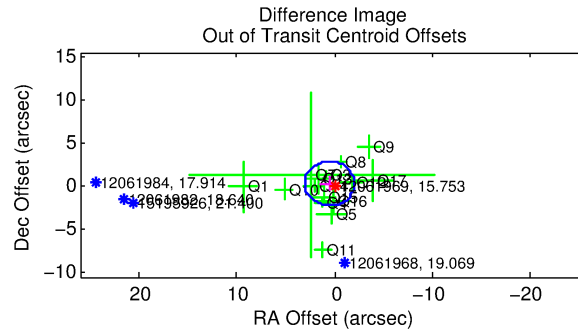
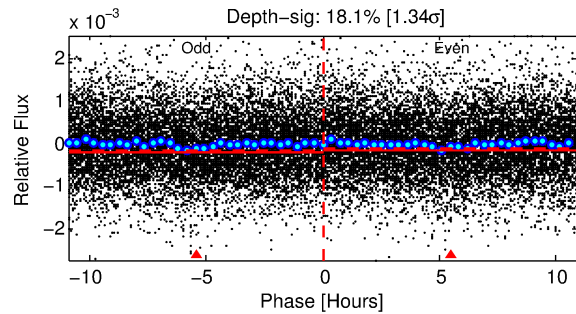
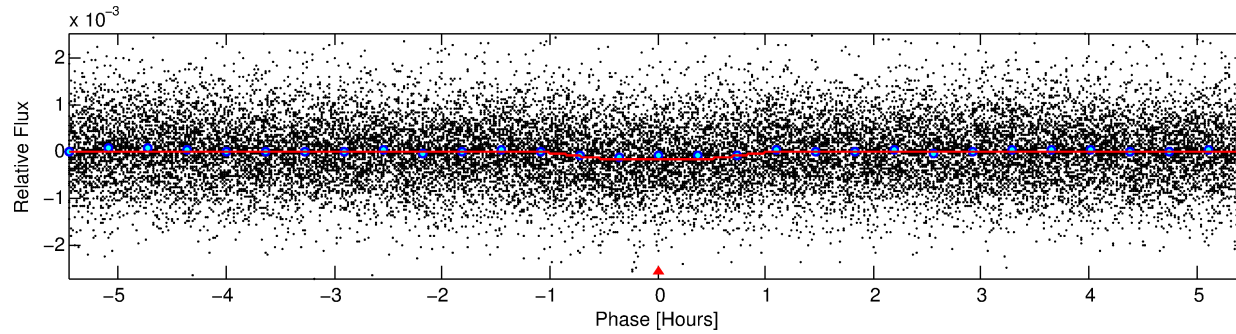
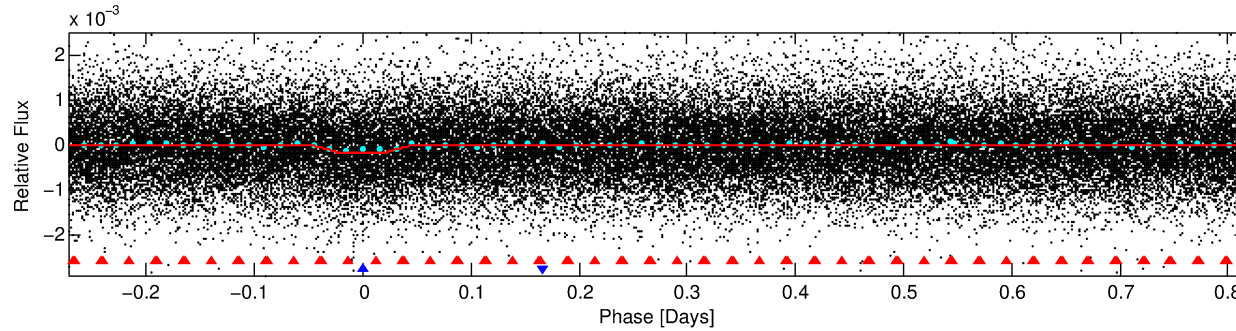
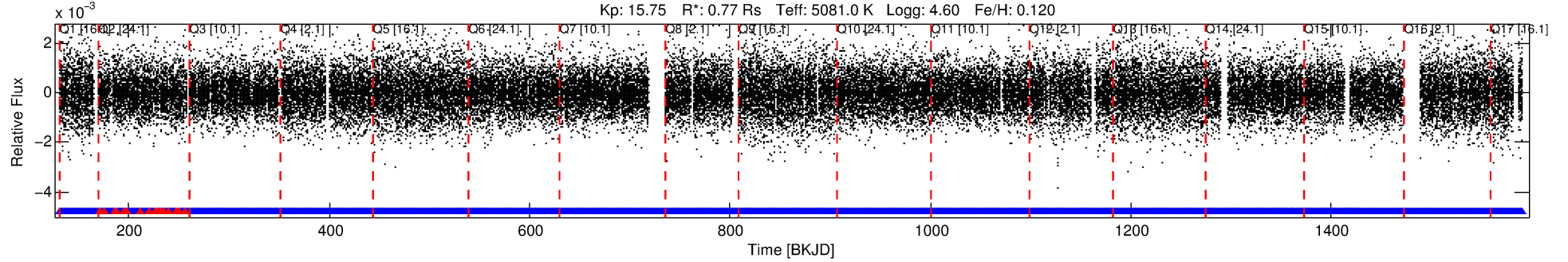
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012061969-02

No Significant Match Found

DV One-Page Summary

KIC: 12061969 Candidate: 2 of 2 Period: 1.090 d
KOI: K02061.02 Corr: 0.865



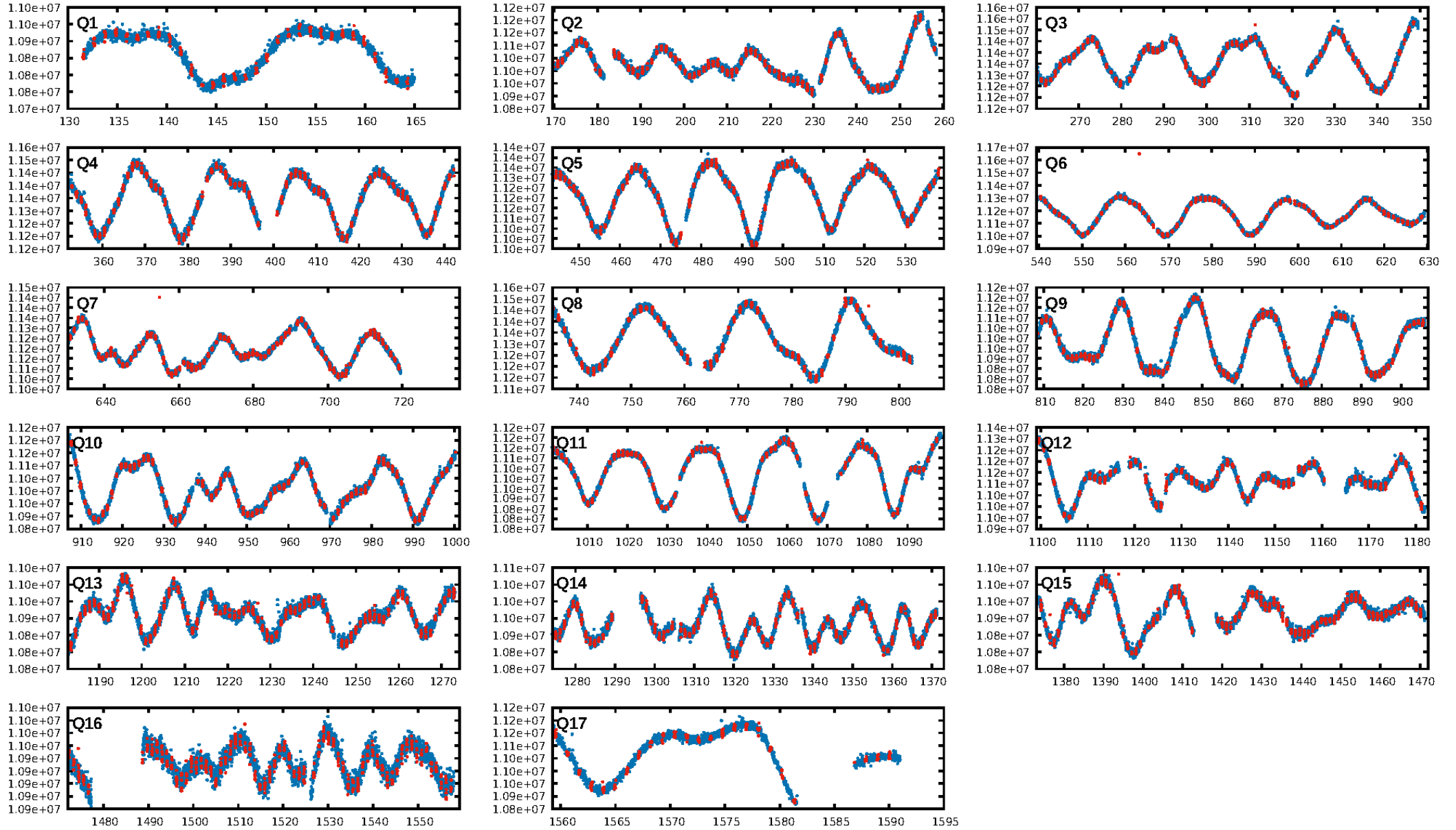
DV Fit Results:

Period = 1.09004 [0.00001] d
Epoch = 131.5703 [0.0021] BKJD
Rp/R* = 0.0142 [0.0104]
a/R* = 2.31 [5.56]
b = 0.90 [0.62]
Seff = 915.72 [183.32]
Teq = 1403 [70] K
Rp = 1.19 [0.88] Re
a = 0.0197 [0.0020] AU
Ag = 6.08 [9.62] [0.53 σ]
Teffp = 3405 [1346] K [1.49 σ]

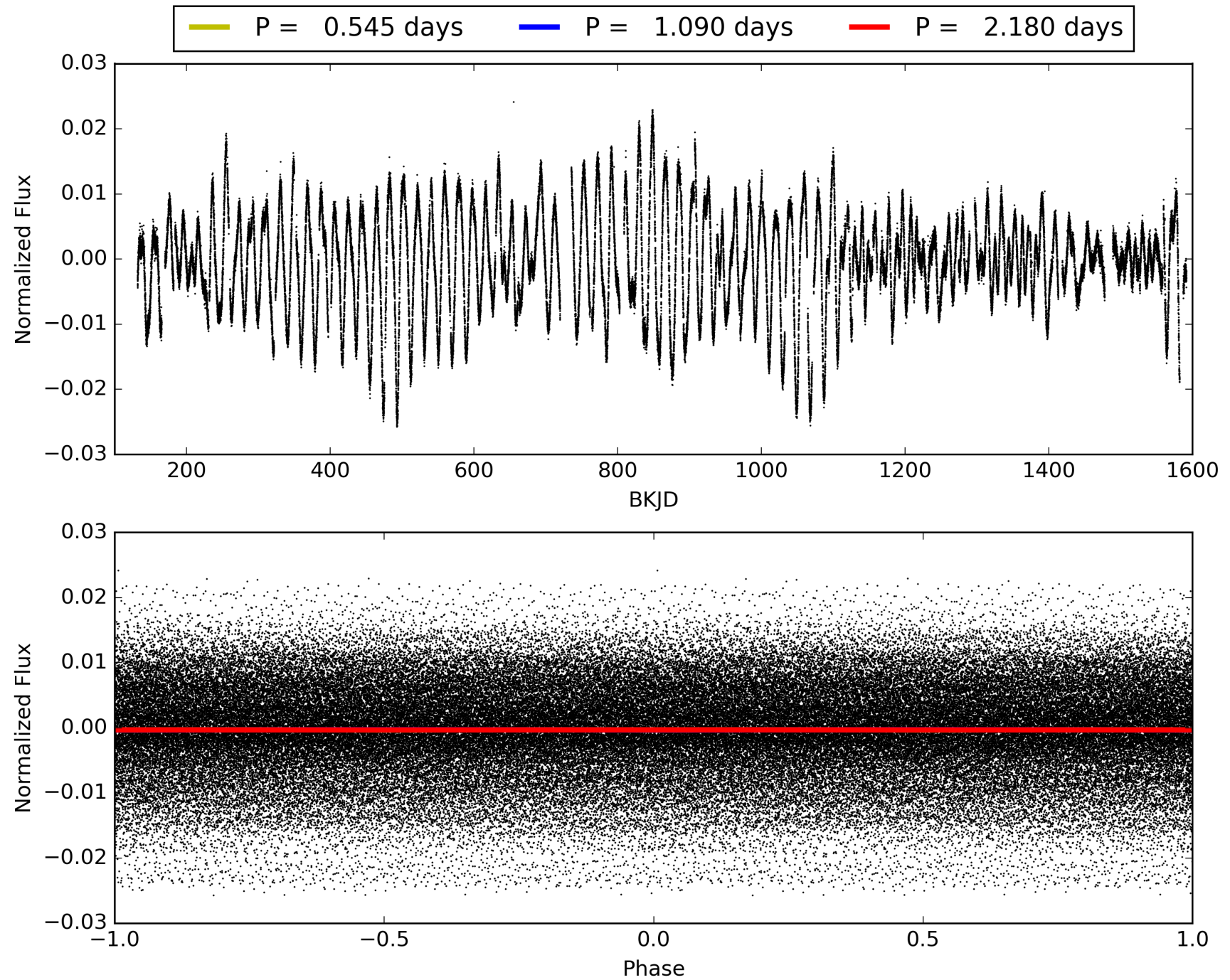
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [48.01 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.47e-26
RollingBand-fgt: 0.98 [1094/1115]
GhostDiagnostic-chr: 5.112
Centroid-sig: 0.1%
Centroid-so: 2.400 arcsec [2.05 σ]
OotOffset-rm: 0.596 arcsec [0.70 σ]
KicOffset-rm: 0.921 arcsec [1.06 σ]
OotOffset-st: 2/4/4/5 [15]
KicOffset-st: 2/4/4/5 [15]
DiffImageQuality-fgm: 0.33 [5/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012061969-02, PDC Light Curves

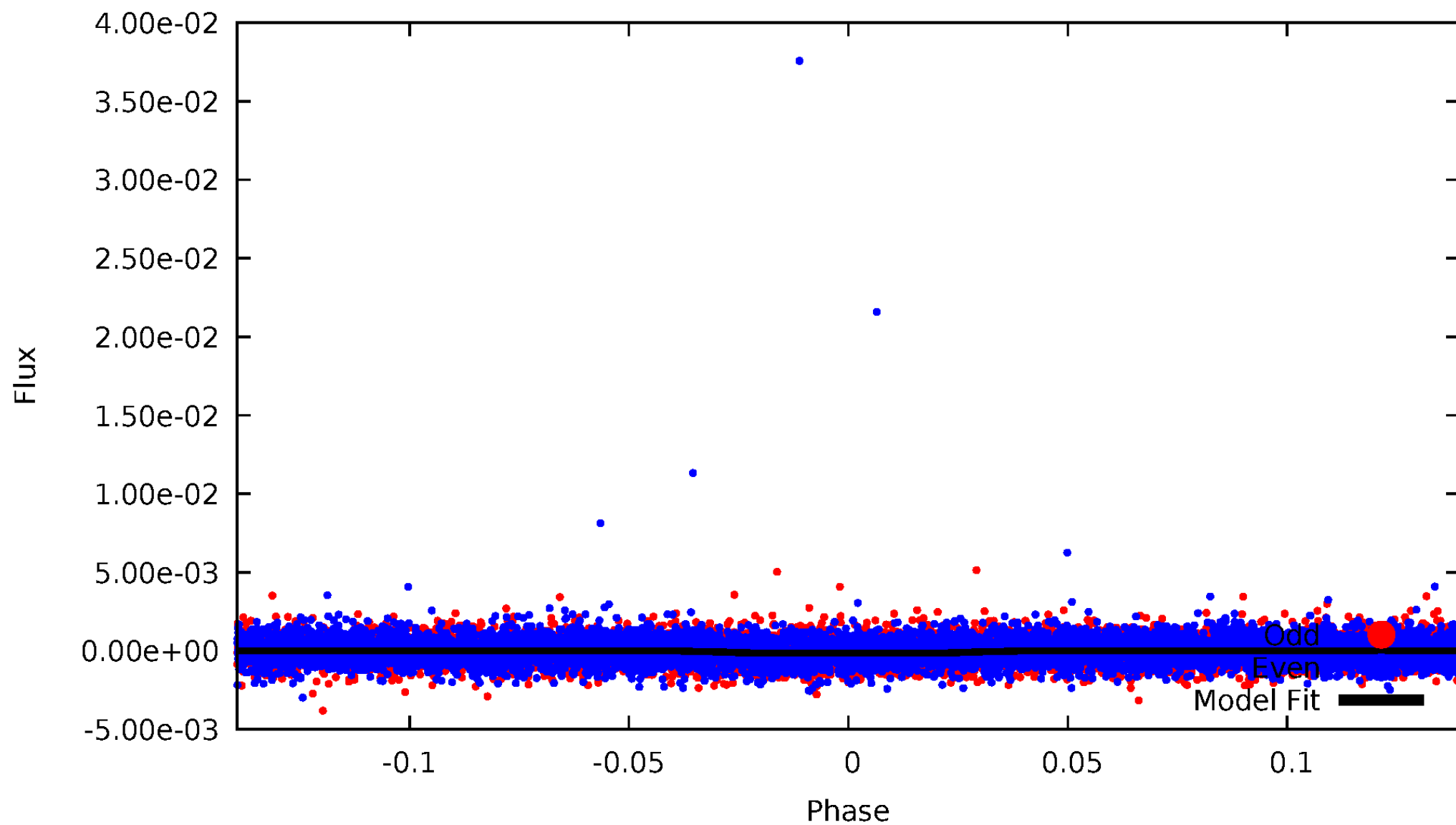


TCE 012061969-02



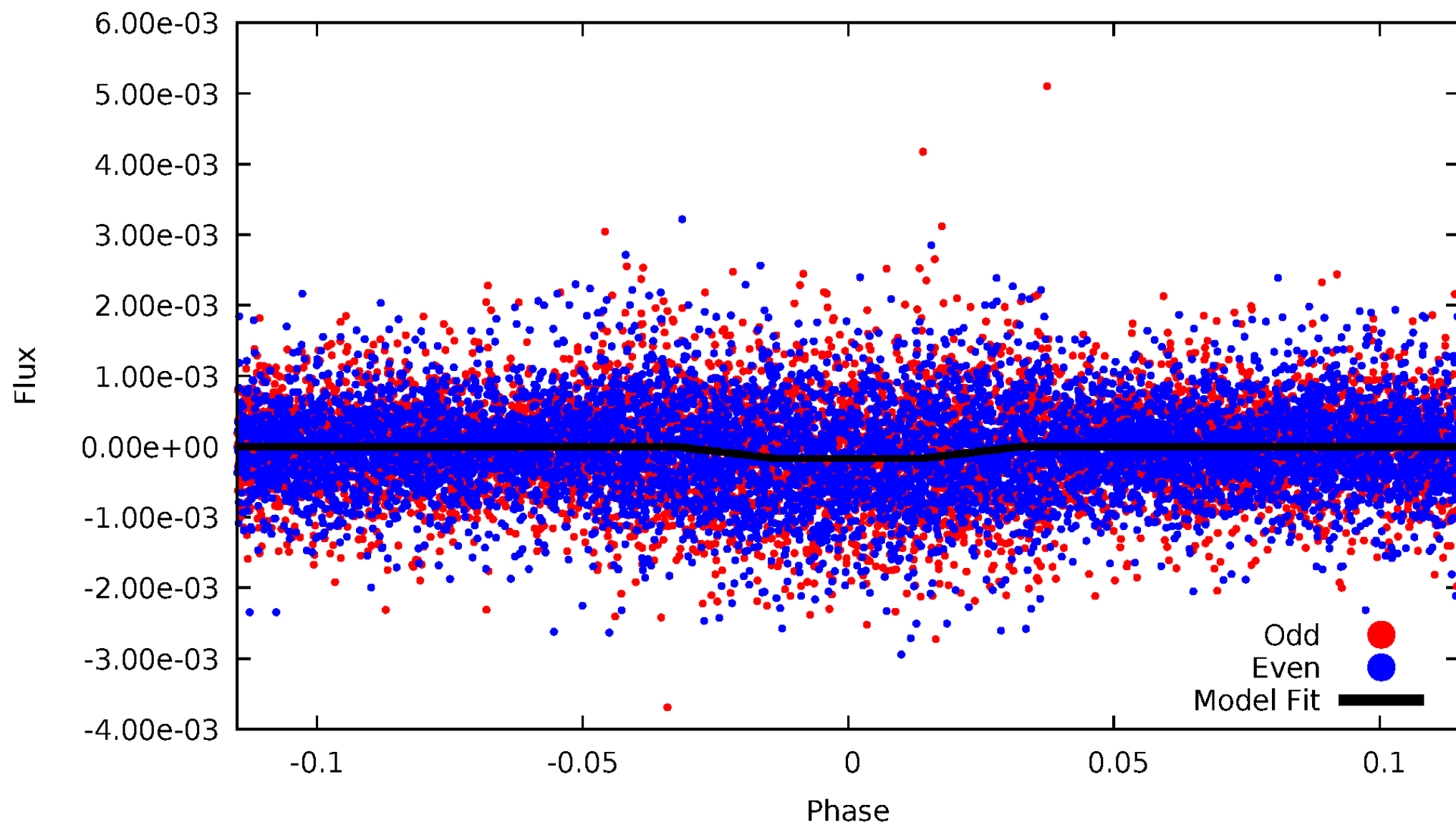
DV Odd/Even

TCE 012061969-02



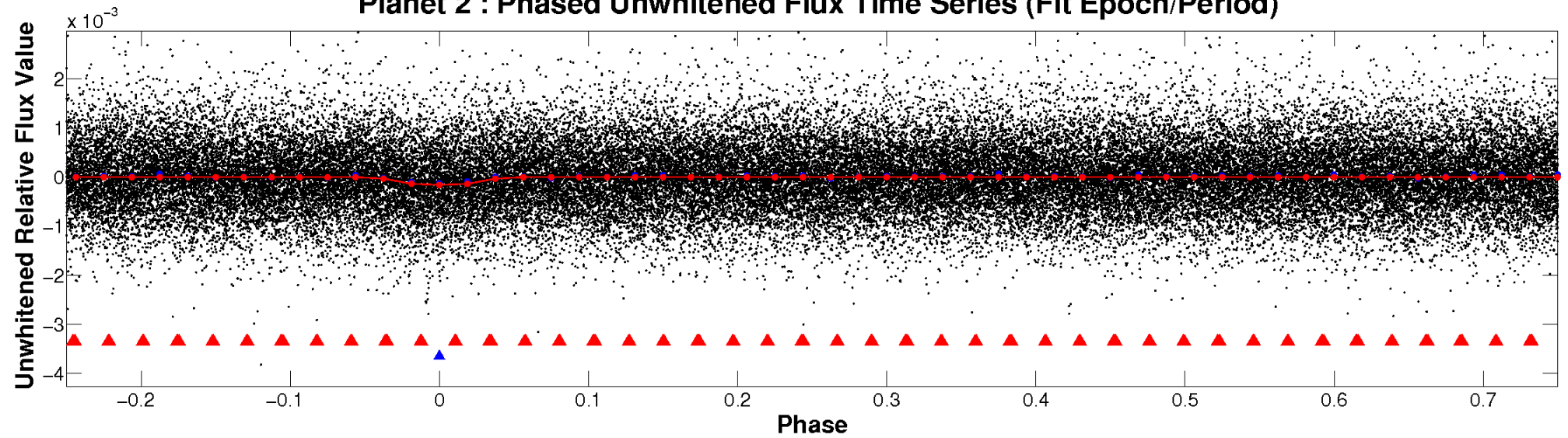
ALT Odd/Even

TCE 012061969-02

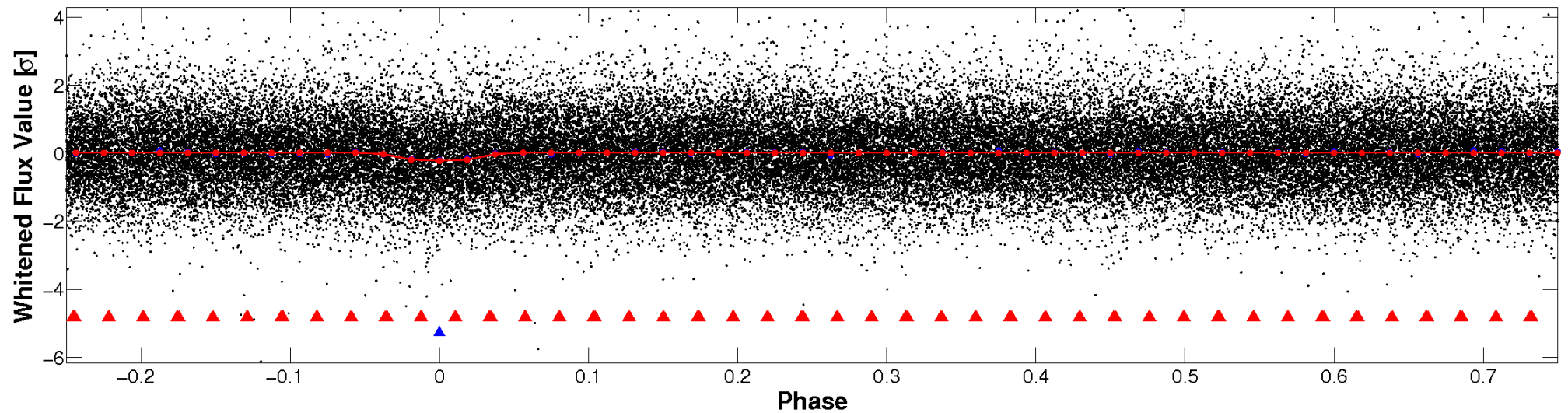


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

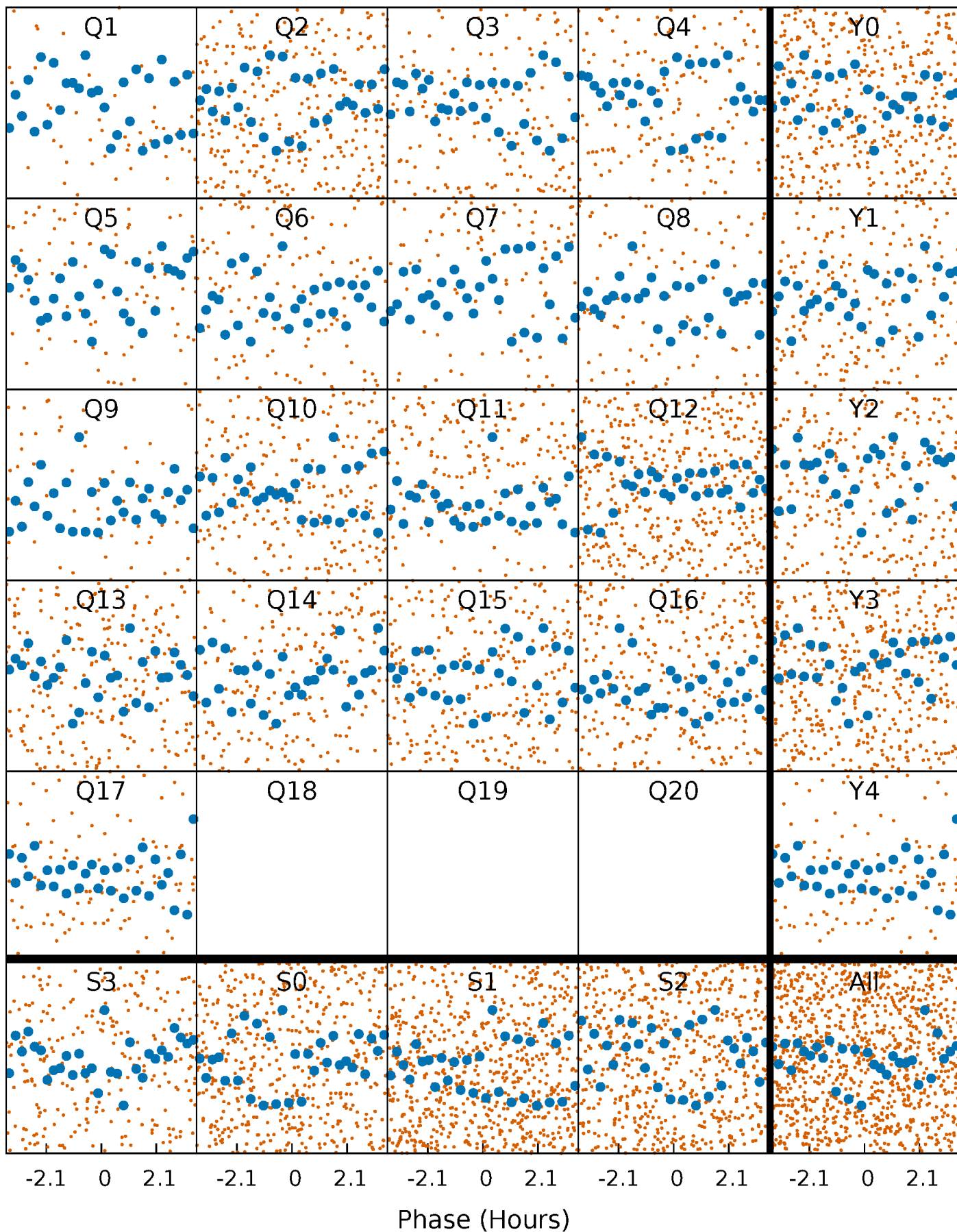


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



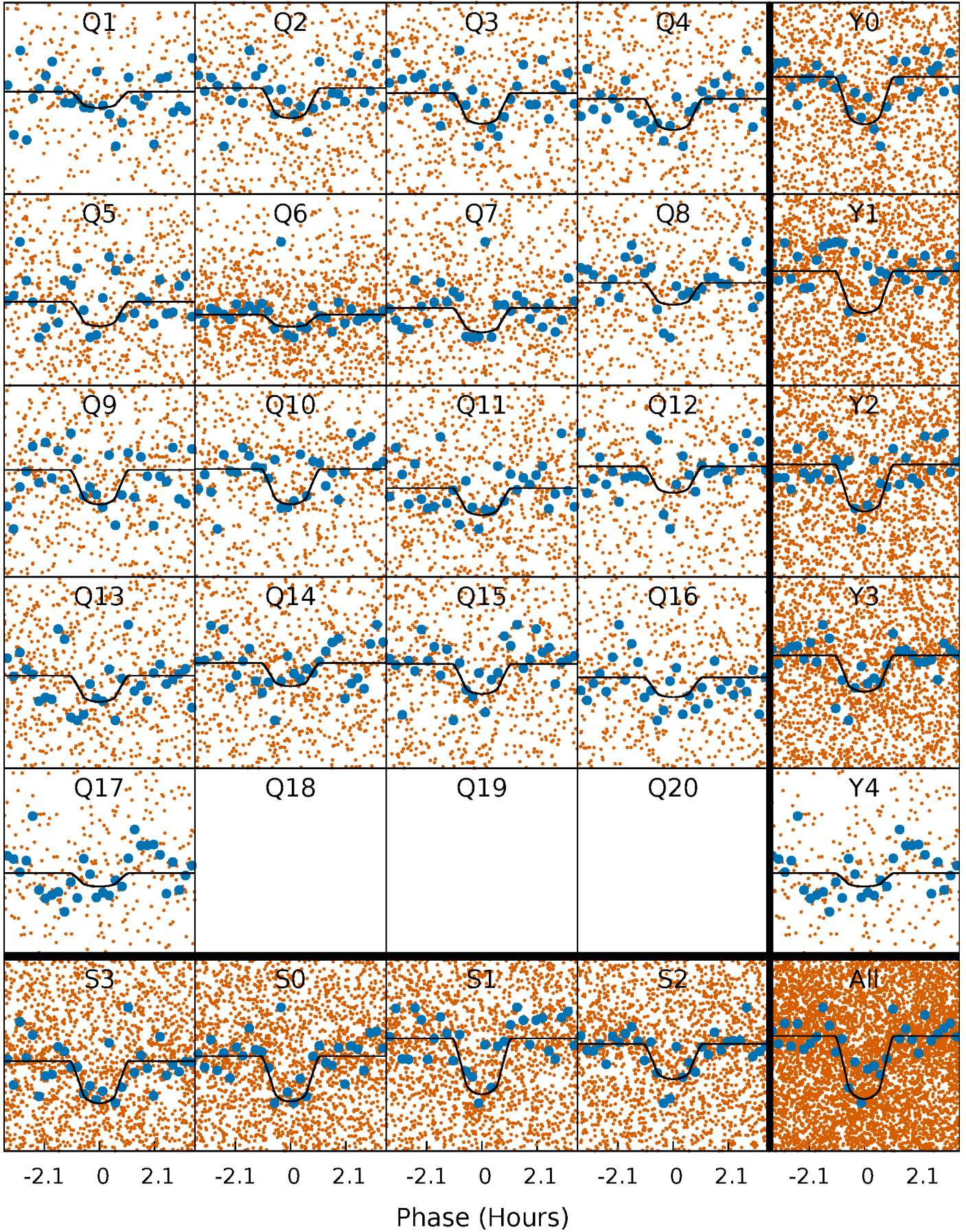
PDC Quarter-Phased Transit Curves

TCE 012061969-02 P= 1.090040 Days $T_0=131.570258$ (BKJD)



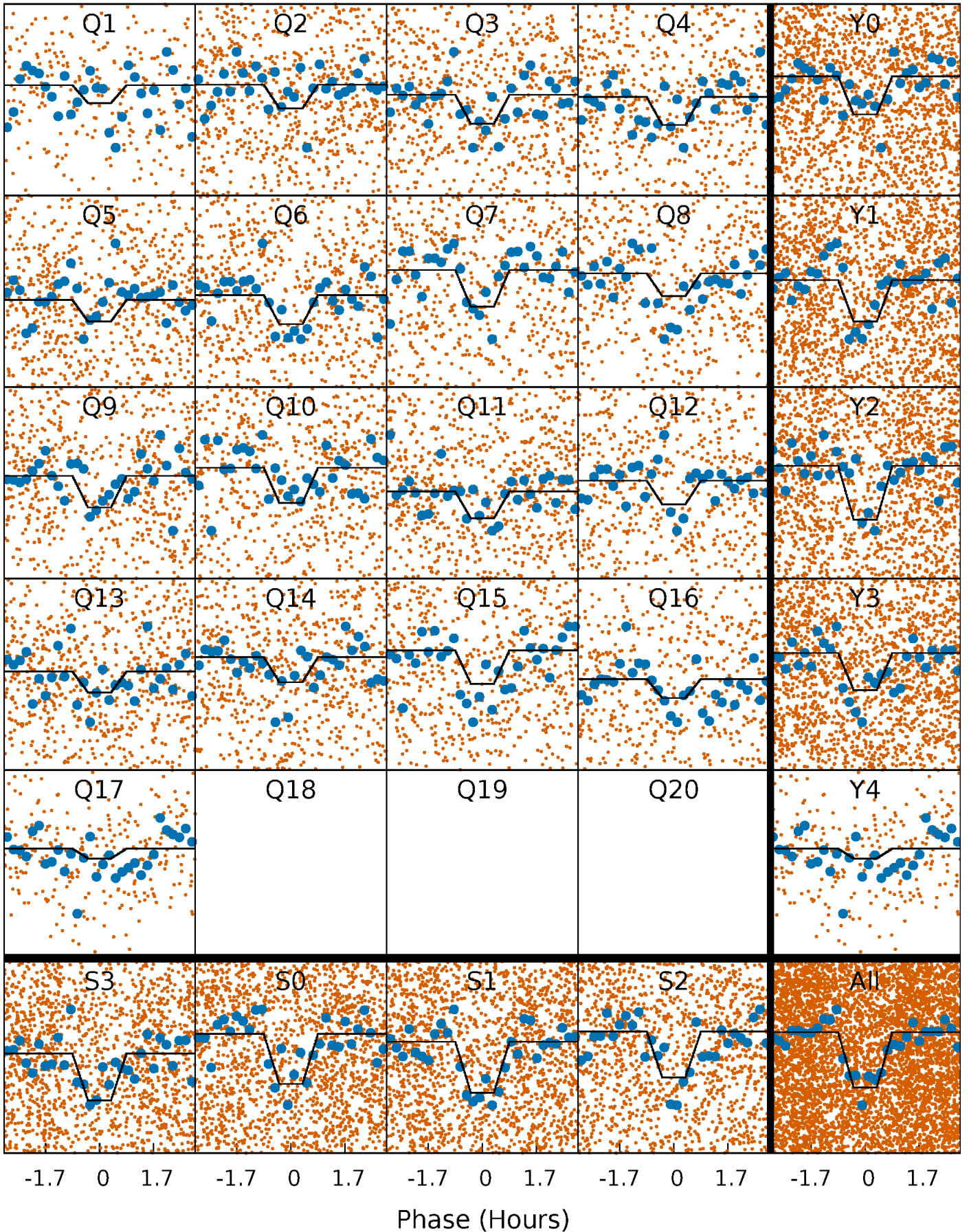
DV Quarter-Phased Transit Curves

TCE 012061969-02 P= 1.090040 Days $T_0=131.570258$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

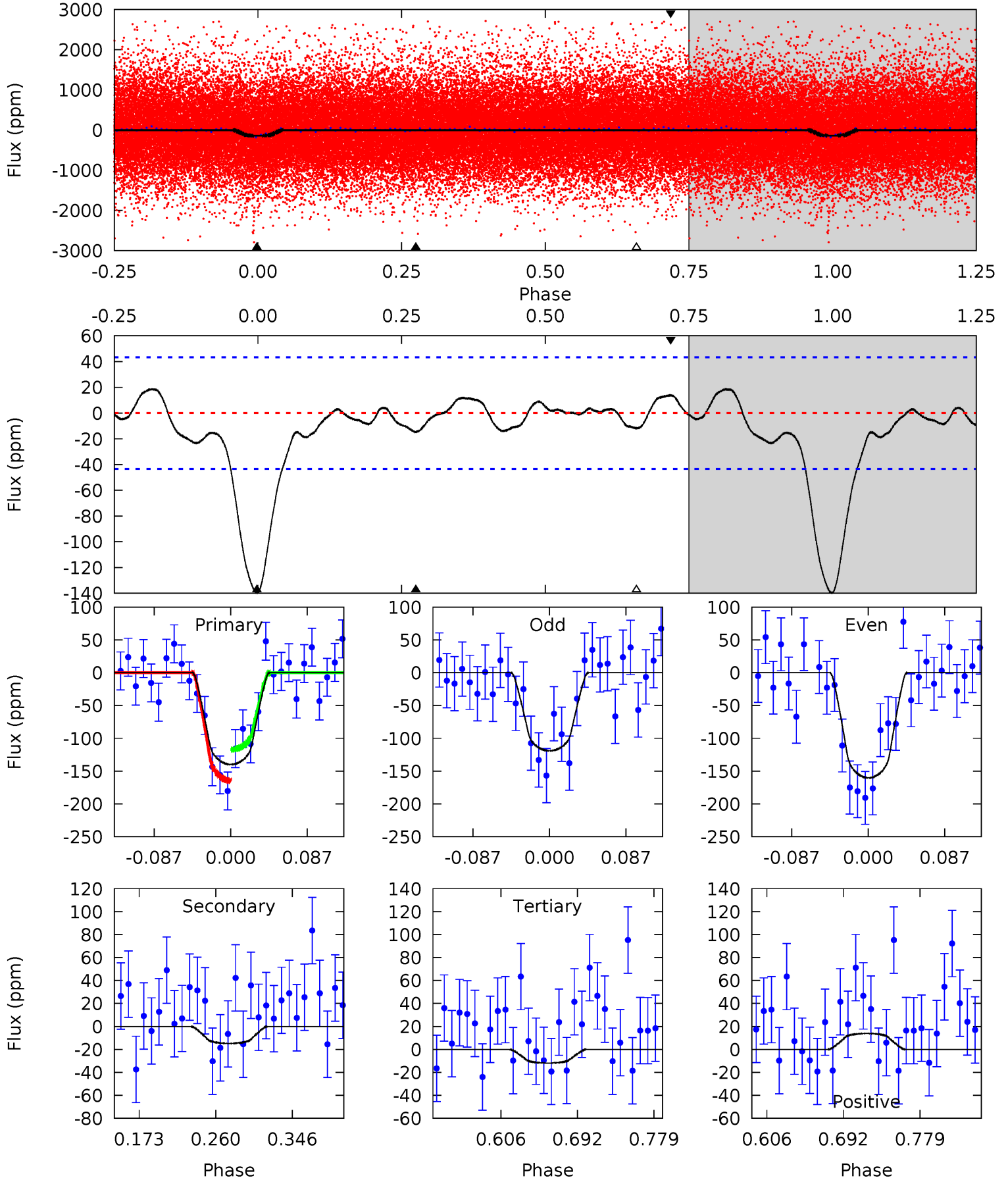
TCE 012061969-02 P= 1.090015 Days $T_0=131.578797$ (BKJD)



DV Model-Shift Uniqueness Test

012061969-02, P = 1.090040 Days, E = 130.480218 Days

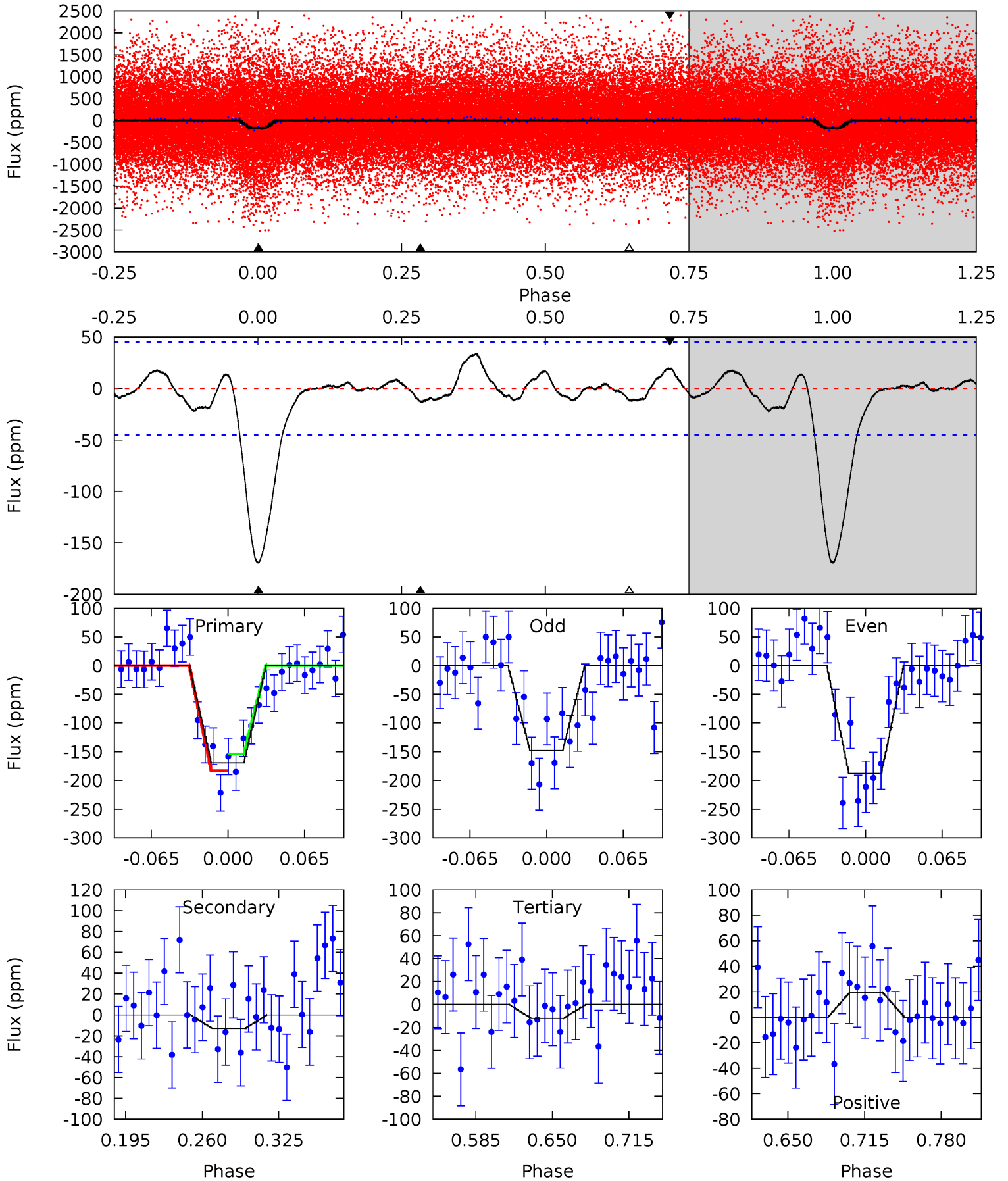
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	1.57	1.26	1.47	4.60	1.71	1.05	13.6	13.4	0.31	0.10	2.19	0.85	0.12	2.52



Alt Model-Shift Uniqueness Test

012061969-02, P = 1.090015 Days, E = 130.488782 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	1.35	1.25	2.04	4.65	1.85	1.15	16.3	15.6	0.11	-0.68	2.07	1.14	0.17	1.51



Stellar Parameters For KIC 012061969

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5081^{+166}_{-136}	$4.596^{+0.028}_{-0.083}$	$0.120^{+0.250}_{-0.300}$	$0.770^{+0.095}_{-0.055}$	$0.864^{+0.049}_{-0.085}$	$2.663^{+0.398}_{-0.741}$
	+3%/-3%	+1%/-2%	+208%/-250%	+12%/-7%	+6%/-10%	+15%/-28%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012061969-02 / KOI 2061.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 9	$1.35^{+0.82}_{-0.80}$	1983^{+90}_{-69}	2975^{+1026}_{-794}	$1.554^{+7.260}_{-1.151}$
Alt.	-13 ± 10	$1.16^{+0.95}_{-0.69}$	1985^{+81}_{-69}	2999^{+1160}_{-1112}	$1.636^{+9.455}_{-1.312}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

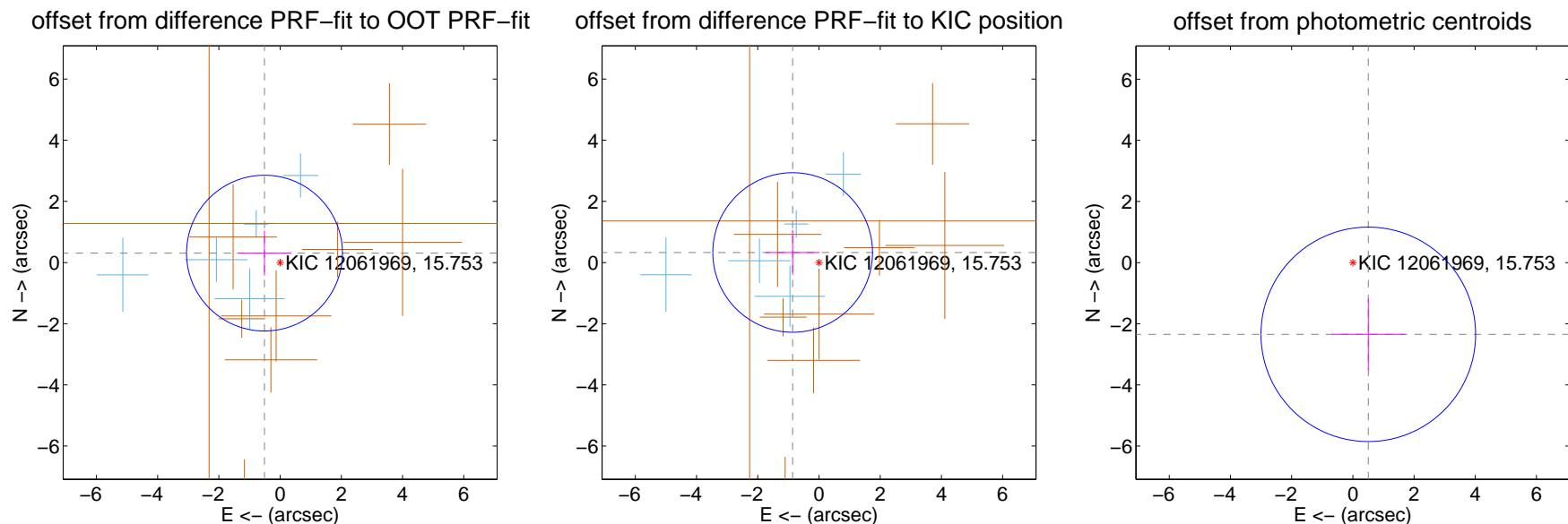
DV Centroid Data

Supplemental centroid analysis for 012061969-02. Kepler magnitude: 15.75. Transit SNR 11.89

There are 5 quarters with good PRF difference image offsets

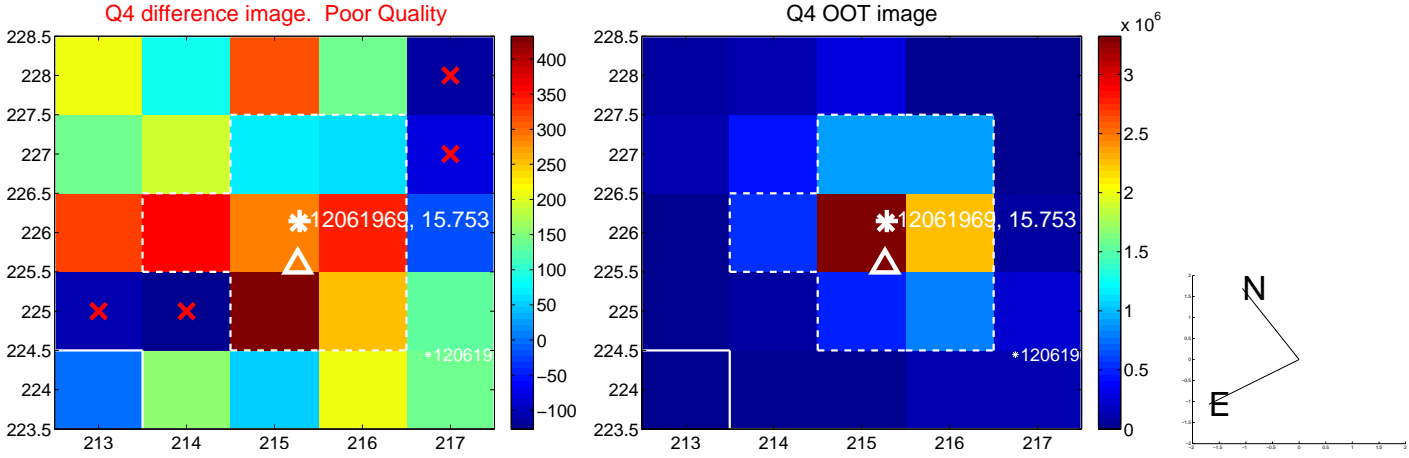
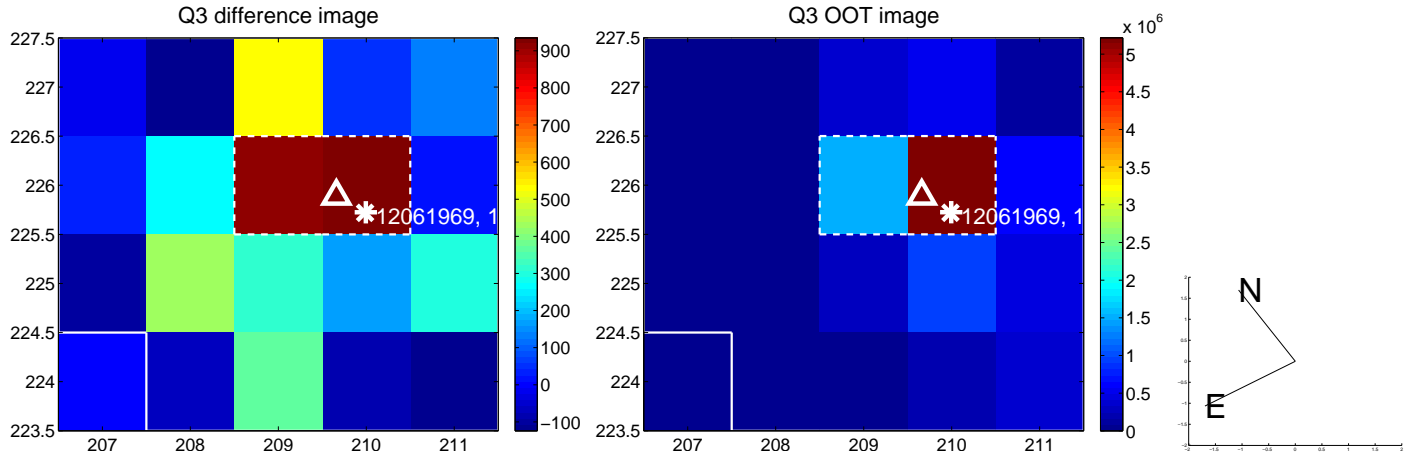
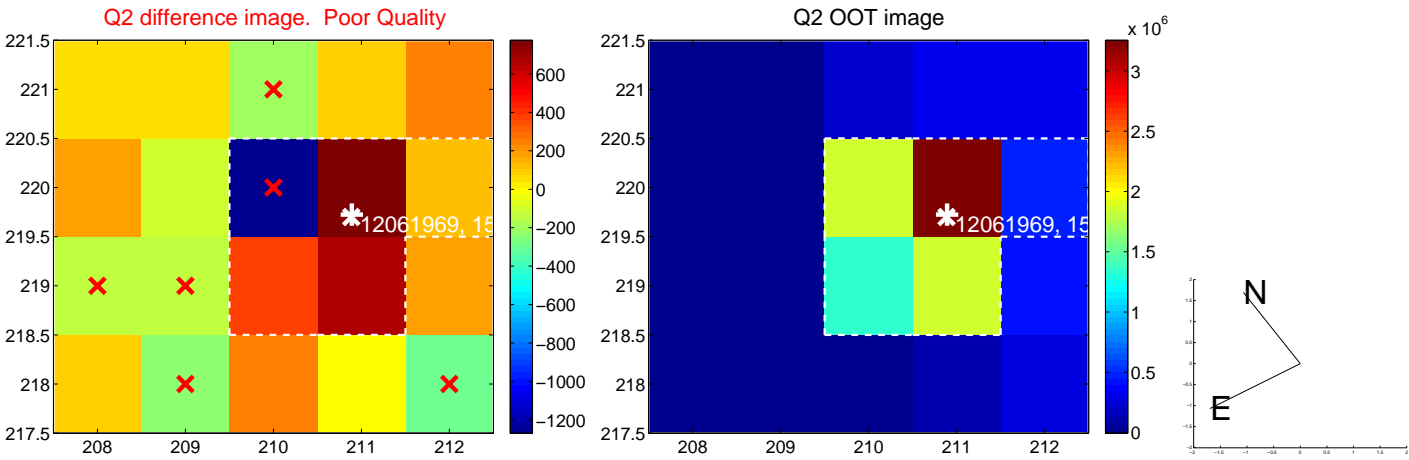
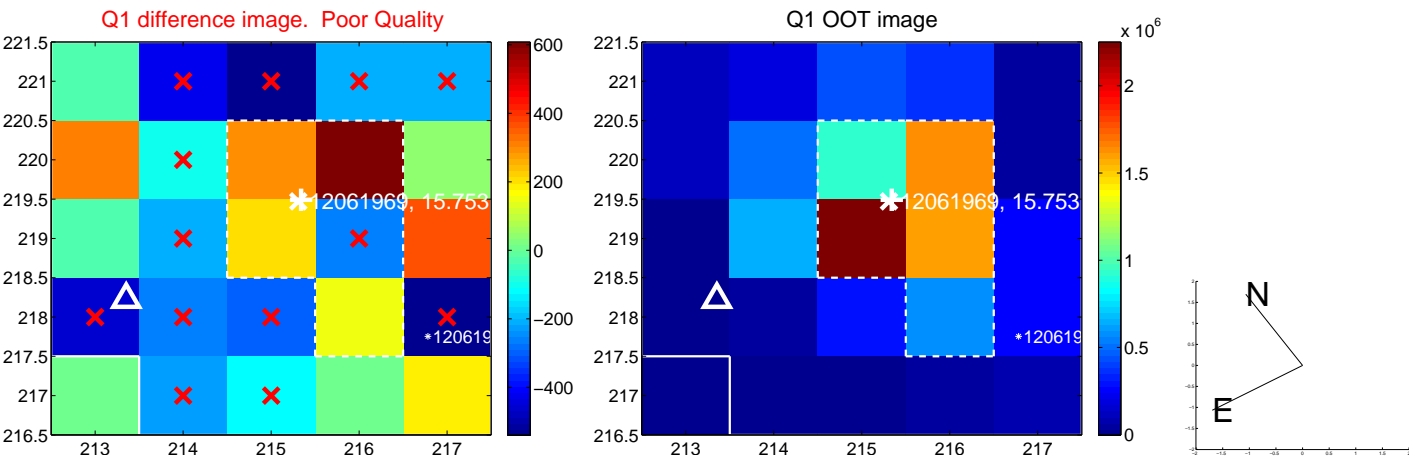
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.596 ± 0.849	0.70	0.510 ± 0.888	0.308 ± 0.732
PRF-fit source offset from KIC position	0.921 ± 0.870	1.06	0.860 ± 0.888	0.329 ± 0.732
photometric centroid source offset	2.40 ± 1.17	2.05	-0.50 ± 1.20	-2.35 ± 1.17

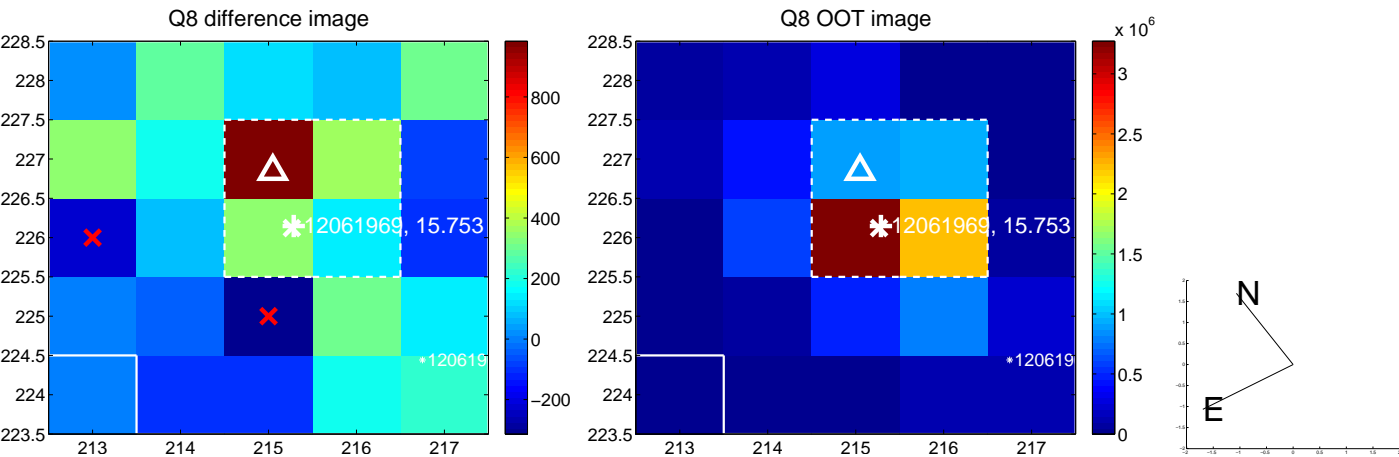
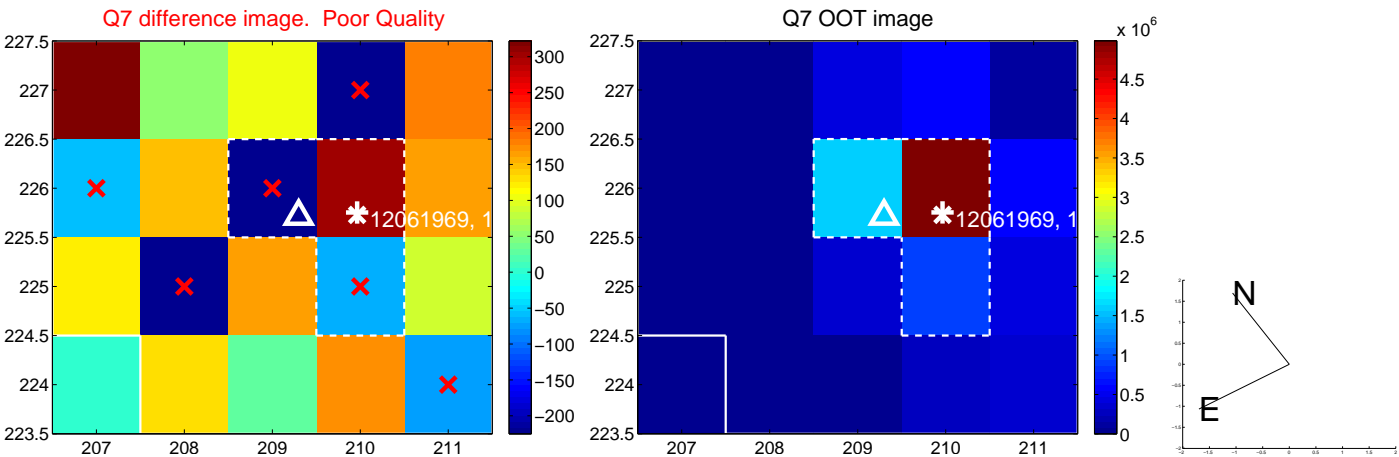
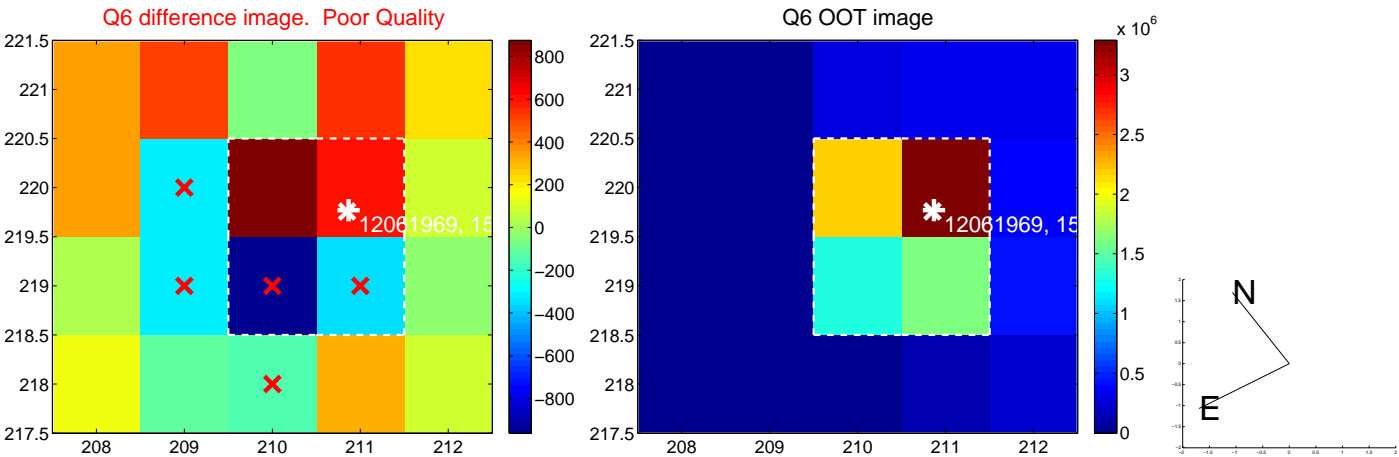
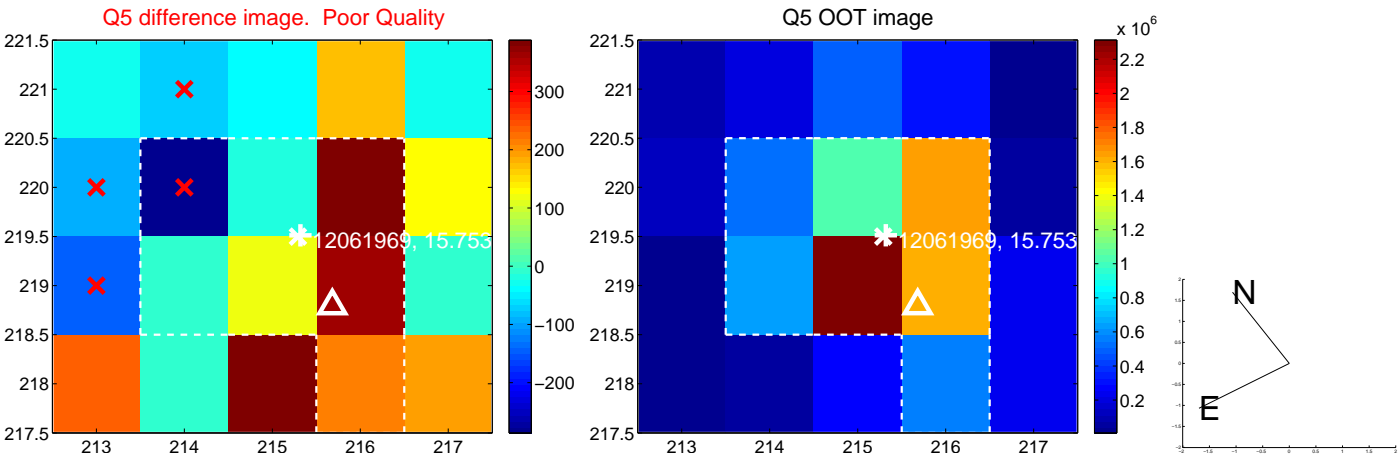


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

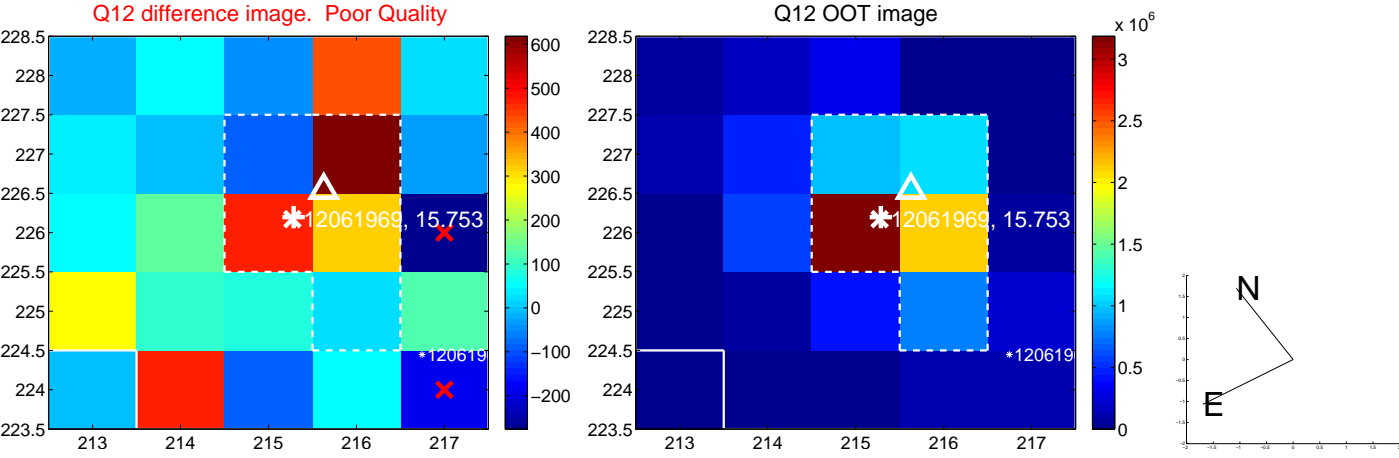
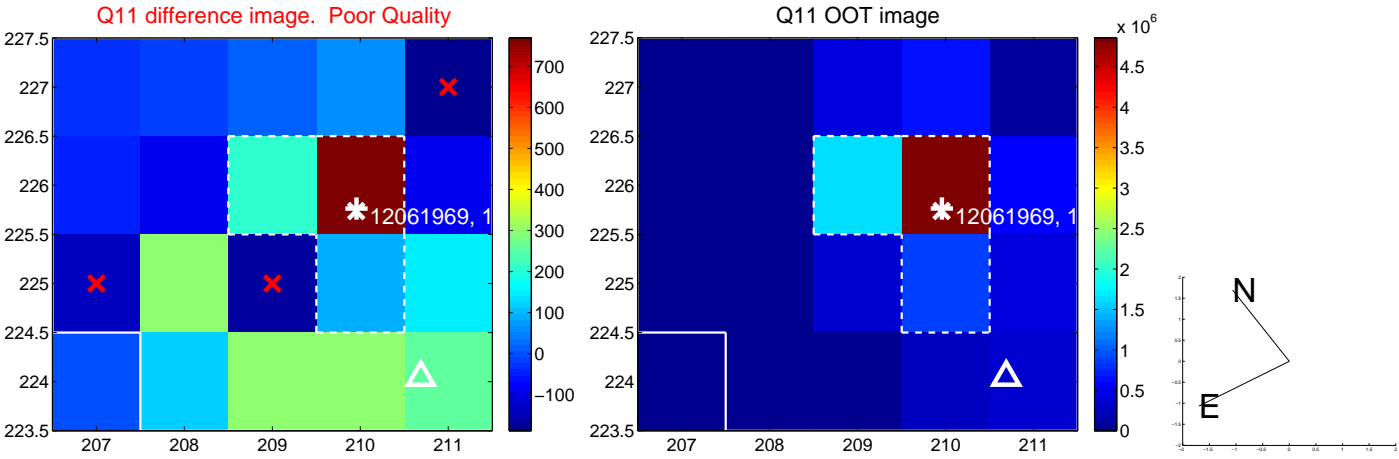
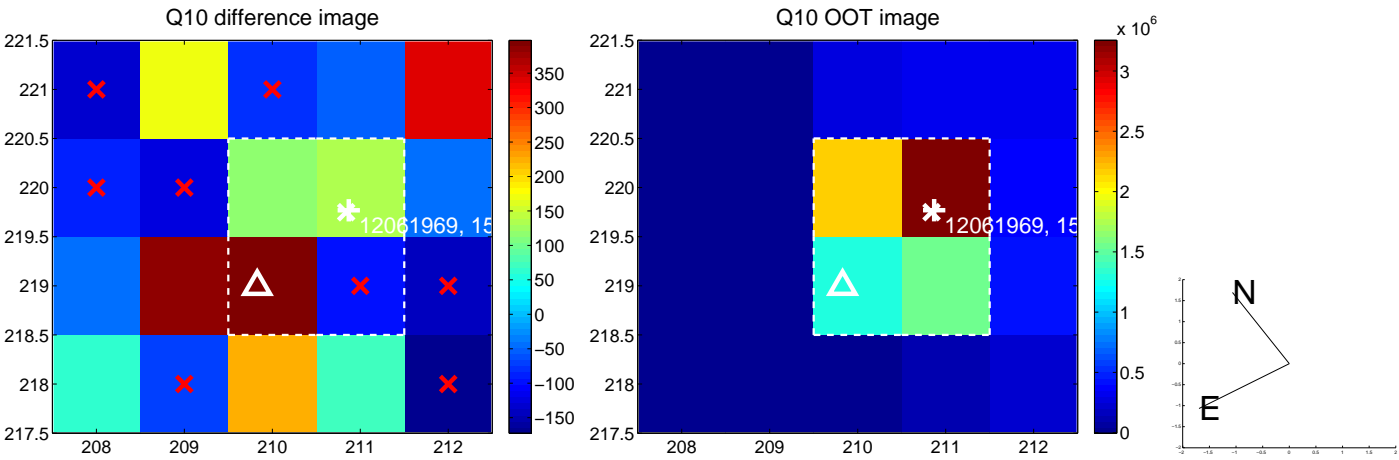
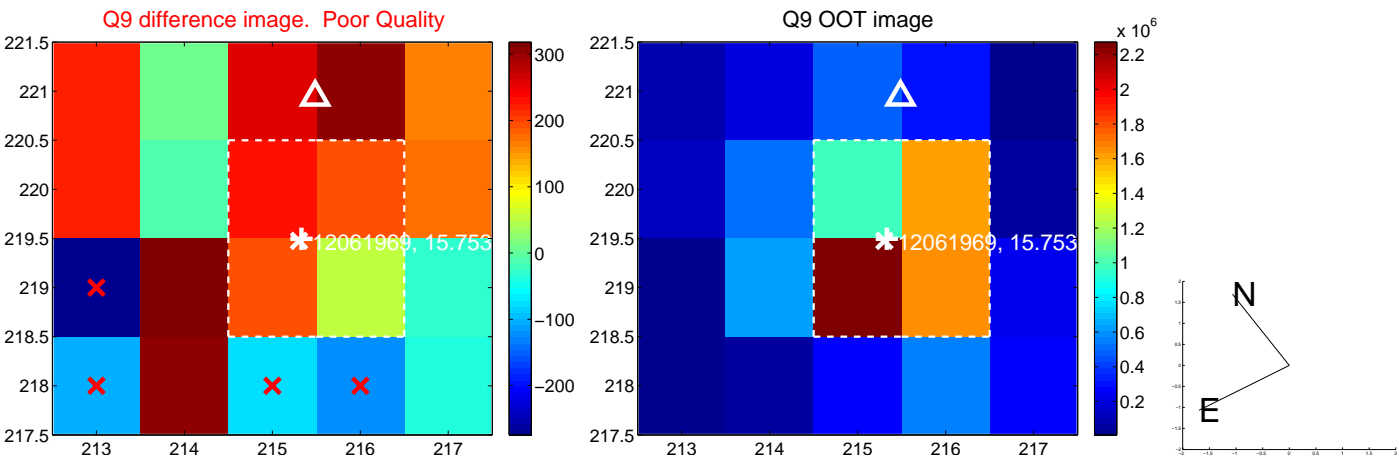
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



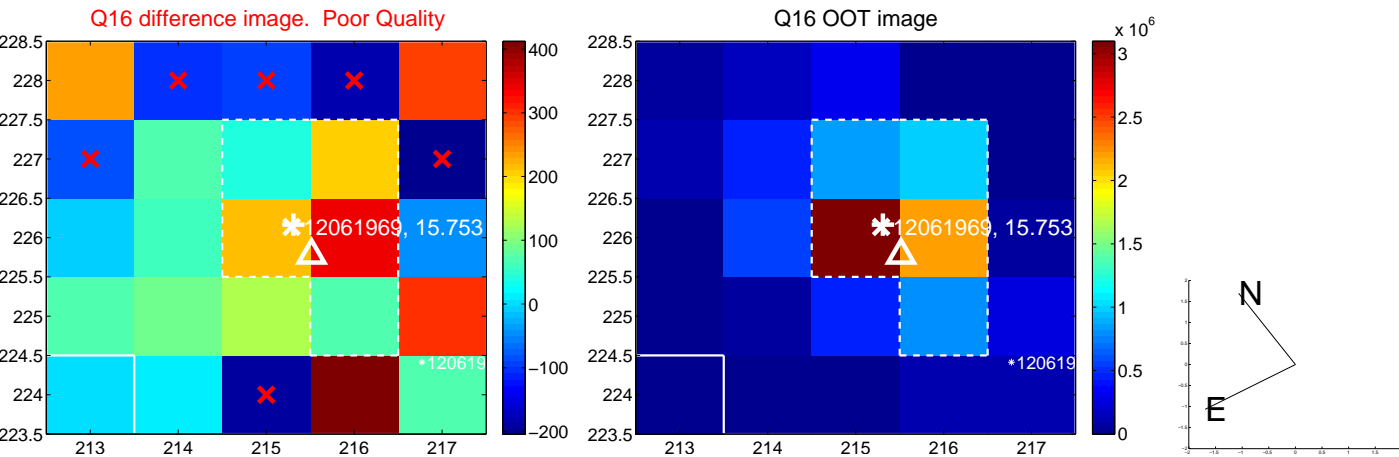
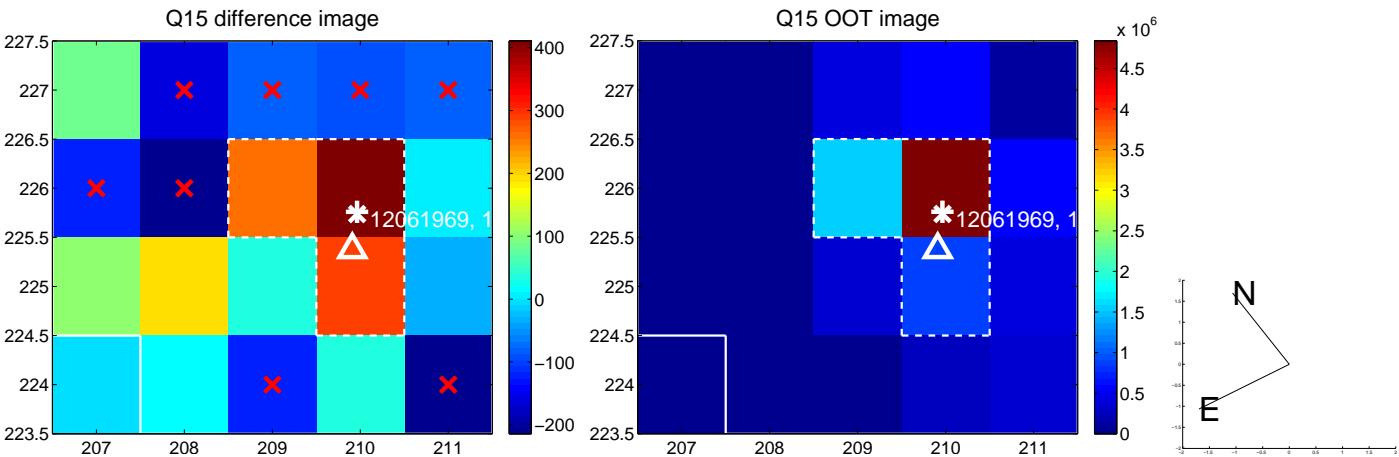
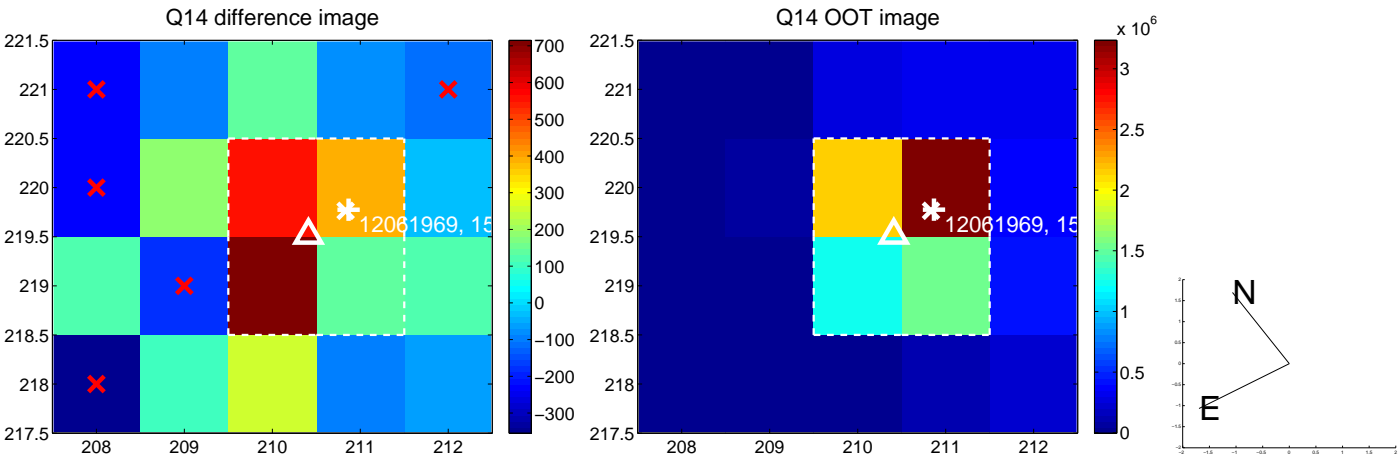
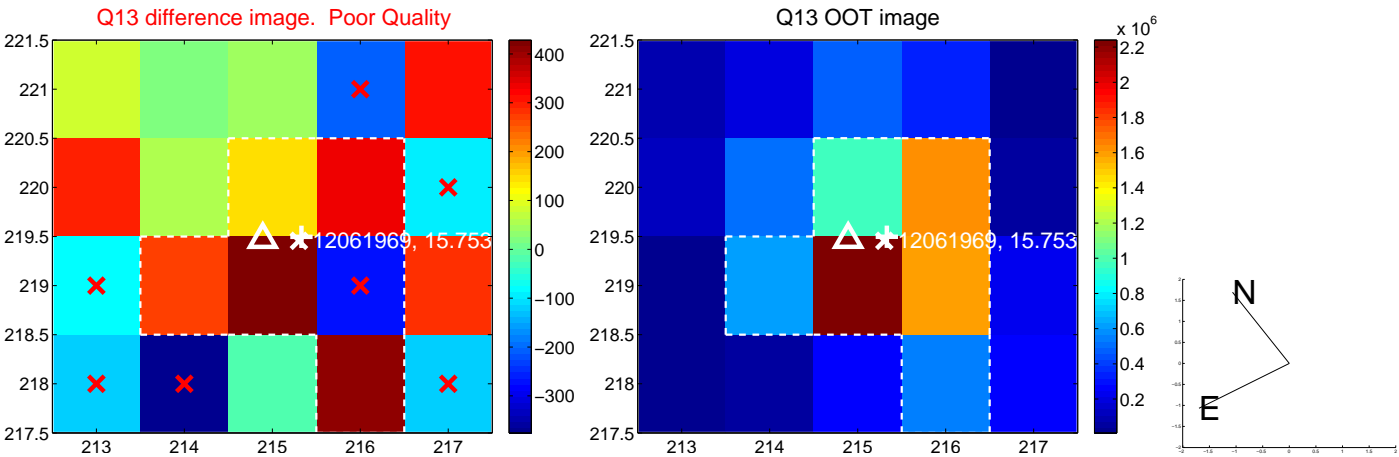
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



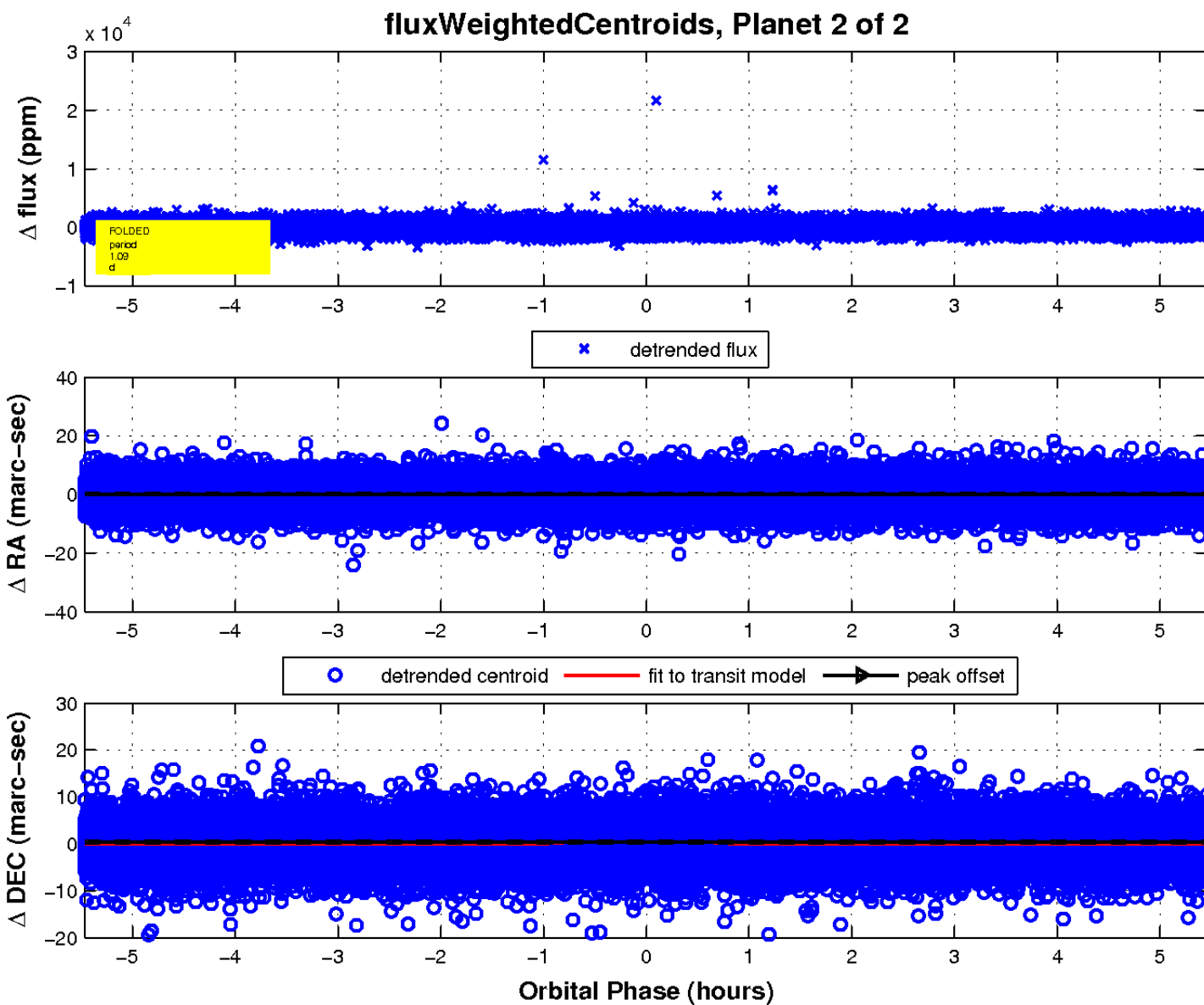
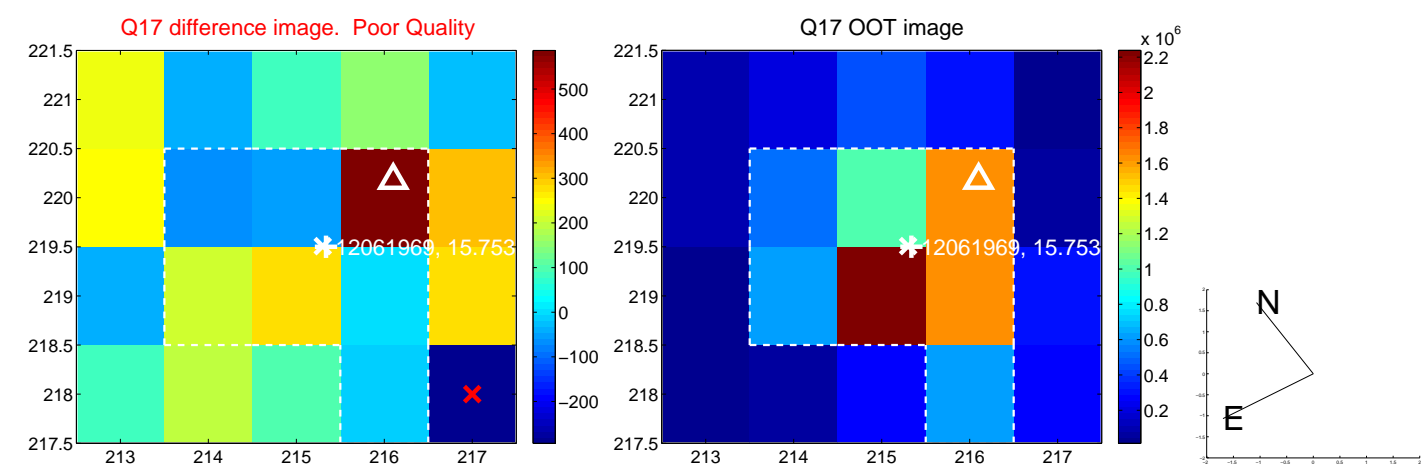
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

